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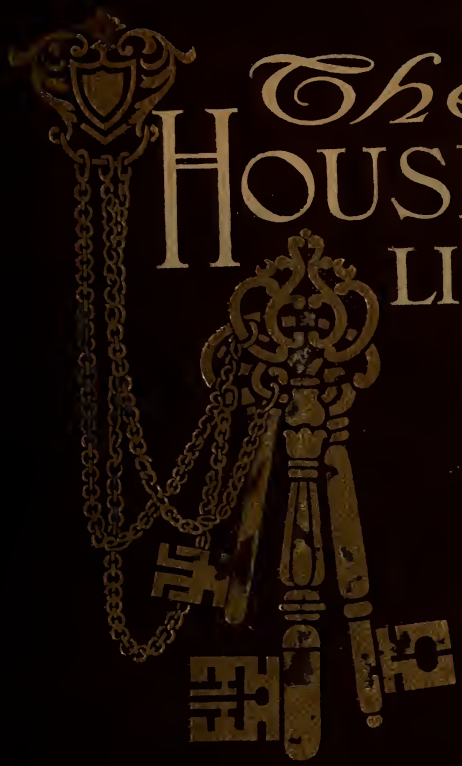

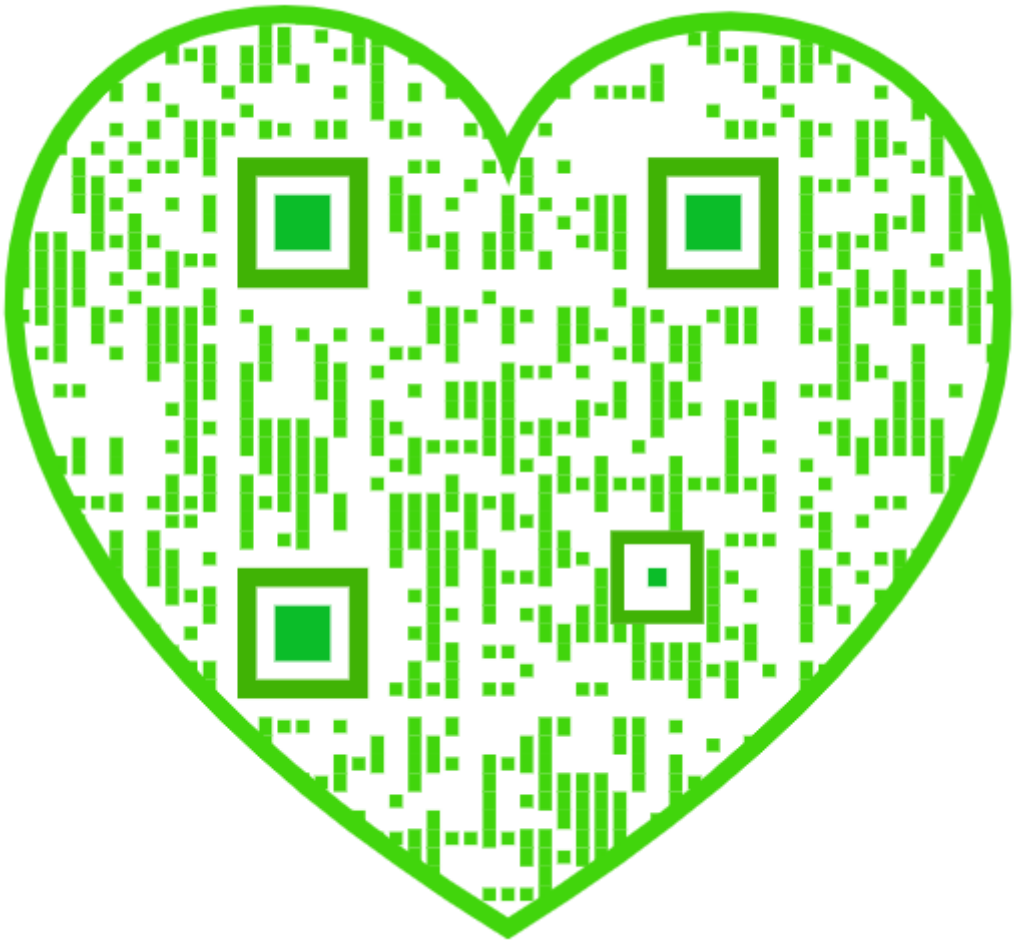

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NEW and original treatises on the building, furnishing, and keeping a home; on home etiquette, and the conduct of dinner parties, receptions, weddings, etc.; on food economy and the preparation of both plain and fancy dishes; on the care of the sick, the hygiene of motherhood, the treatment of infants and young children; on the legal rights of women in the various States of the Union, with advice as to business careers, investments, etc.; and on the manly and ladylike conduct of young people during the formative period of character. With many illustrations in half-tone.

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THE NEWCOMER

—Home Nursing

Home Nursing

Motherhood—Care of Children

BY

HARRIET FORBES

AND

HARRIET MERRILL JOHNSON

Graduate Nurses of the Massachusetts Homeopathic Hospital, Boston, and the Sloane Maternity Hospital, New York; Graduates of the Hospital Economics Course, Teachers' College, Columbia University; and Visiting Nurses of Nurses' Settlement and Hartley House

WITH FRONTISPIECE IN COLOR
BY W. T. SMEDLEY.

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PART I

HOME NURSING

I

MATERIAL AND SPIRITUAL EQUIPMENT OF THE HOME NURSE

Ethics of Nursing—What Room Should be Chosen—Care in Ventilation—Devices for Ventilation—Freeing the Invalid from Noise—Simple Furnishings in Sick Room—Bedsteads—Mattresses—To Make a Sick Bed—Daily Care of Sick Room—Care of Utensils—How to Save Steps

THE thought of accepting an invalid as a member of the household is always a trying one, and often brings consternation into otherwise quiet homes. Possibly a few suggestions may lighten the burden of such a situation, and encourage the mother, sister, or wife who is to act the part of nurse *pro tem.* and who needs to know something of the equipment, both material and spiritual, for such an undertaking.

Dress of the acting nurse

The clean gingham dress of the hospital nurse, worn both winter and summer, is a familiar sight, and typifies that absolute cleanliness which is both her personal and her professional characteristic. It is quite possible for the acting nurse also to don a cotton gown, which should be simple and easily laundered. Having once felt the comfort of such a working-dress she will hardly wish to return to the heavy woolen skirts so unsuitable for the sick-room.

We all recognize the absurdity of a nurse's going, as one once did, to take charge of a case and appearing before her patient arrayed in a pink silk waist, yet the same incongruity would not appear so great if one of the family, or a familiar friend who was serving in the capacity of nurse, were the offender. The principle, however, is quite the same in either case.

The nurse's care of her own person

But far more important even than the matter of dress and quite within the possibility of every one, is the need of frequent bathing on the part of the nurse and proper attention to neatness in the details of her toilet—the clean, well-trimmed nails and hair carefully and simply arranged.

Blessed characteristics in a sick-room

Deft hands, quick insight, a gentle bearing, good temper and a generous dash of humor are priceless blessings in a sick-room, and may be cultivated in a very large measure, if their value is sufficiently appreciated. The nurse who pounds the pillow on the patient's bed or clumsily jars it every time she passes, who is ill-natured and unkempt, or who reveals by her manner that her work is arduous, is distinctly working against the recovery of her patient, though she may little realize the cost of her thoughtlessness.

ETHICS OF NURSING

The Golden Rule

It is no time when a person is sick to regale him with grewsome or unpleasant tales; yet how often a garrulous neighbor delights in the opportunity of setting forth some harrowing incident while, it may be, the distressed patient is too weak even to protest. The ethics of nursing is a large subject, but perhaps, after all, the practice of the Golden Rule is its simplest expression.

CHOICE OF A ROOM

The room best adapted for invalid's use

As regards the chief features of importance in the selection of a sick-room, namely, the securing of good air, quiet, and plenty of sunshine, we must recognize that there are many households where these conditions can not be ideal. But wherever a choice is possible, the room best adapted for an invalid's use should be selected even at the cost of some inconvenience to other

members of the family, since comfortable and hygienic surroundings are a large factor in the recovery of a patient, and model conditions will be described, because the ideal must always be the standard toward which we progress.

Having the best conditions

An airy, spacious room, having a southern exposure and several windows, so that the sunlight can flood daily, and far enough removed from the noise of the kitchen or front door to secure absolute quiet, affords the best possible conditions for a very ill patient.

VENTILATION

If once we heartily believed the truth that the body starves for lack of oxygen as it plainly does for lack of food. there would be no necessity for the protest against tightly closed and ill-ventilated rooms. The starvation for oxygen, it is true, is much more slow, and it may be years before one sees evidence of the depletion the body is undergoing in cases where the supply is insufficient, whereas the daily demand for food is a crying one that can not be overlooked.

The body's need of oxygen

In spite of our ignorant efforts to keep out the fresh air, enough oxygen sifts in through the cracks of doors and windows to satisfy, in a small measure, the demands of the body, and thus relieve the feeling of suffocation which is the most urgent call of the organism to supply its need. If this were not so, the suffering would be such that one could not tolerate the conditions.

Proof of this need

As proof of the impoverishment that exists under bad conditions, one has only to cite the physical effects upon the system observed after a night spent in a closed room—the dull head, lack of appetite, lassitude, and general depression—and compare this, if one has ever experienced it, with the feeling of ex-

uberance and delight in nature felt after a night spent in the open air. It is when disease comes, however, that the real difference between the well and the ill-nourished body is most apparent. Not infrequently people who have never known sickness, but who have all their lives disregarded the laws of health in respect to ventilation and whose bodies have lived on a meagre supply of oxygen, are not able to resist the approach of disease.

In sickness

For the sick-room, low windows admitting an abundance of fresh air and sunshine are much needed, while the addition of a balcony opening out provides attractively for the convalescent days, both in summer and winter.

Open windows for invalid and outside boxes for plants

Window-boxes help to make the chamber cheerful, and are in no way objectionable; but plants filling a window and shutting out the sunshine should be condemned.

If the window is arranged to lower from the top—and all windows should properly be so arranged, since the foul air of a room has a tendency to rise—ventilation in cold weather is made easy. By reversing the position of the sashes, a current of air escapes in the centre between the unevenly fitting framework. But better still for use in the winter, is a board four or five inches wide and perhaps an inch thick, just long enough to fit the window if slipped under the lower sash. This method provides a larger current of air in the centre between the sashes, and in either case there is no draught possible. Another device is to fasten a piece of cloth across the lower part of the window from side to side, so that the air can not blow directly into the room when the bottom sash is raised.

Good methods of ventilation

The use of small screens will not be forgotten, and often one may be improvised by means of a clothes-

horse and a couple of sheets or light shawls. A high-back chair may also serve the same purpose, and for a baby's crib an open umbrella does very well if nothing better is at hand to protect against the draught. The use of screens

A fireplace provides another means of ventilation besides adding greatly to the charm of the room.

Ventilation is generally a possibility in any sick-room, but absolute quiet is not so easily secured, and on this account certain cases must be sent to the hospital.

It must be borne in mind that when the doctor advises the hospital it does not necessarily mean the desperation of the case, but very possibly that the increased facilities for the proper care of the patient which the hospital affords are demanded in order to hasten recovery. What going to a hospital implies

NOISE

There are some devices by means of which an invalid may be spared the irritation of trifling noises and the sharp, sudden sounds always much more annoying than the dull, continuous rumble of the street or the general stir about the household. A creaking door-hinge can be oiled, even if one has nothing but vaseline with which to do it, and on the door of the sick-room, which must be frequently unlatched, a small towel may be twisted from one handle to the other to prevent its closing tightly, or a rug be pulled across the threshold to serve the same purpose. How to lessen little noises in home nursing

Windows which rattle can be made secure by the aid of a few pegs whittled from burnt matches, and should be attended to before the patient is settled for the night. If a dripping faucet can not be turned off, a cloth may be tied over it, and the loose, creaking boards in the floor may become such familiar spots Devices for quiet

to the thoughtful nurse that she almost unconsciously avoids them. If a grate fire or stove is in the room, the care of it may be made far less trying to the nerves of the sick one if the coal is placed in a large paper and laid on the fire when replenishing it, instead of being shoveled in the usual way. A wooden poker can be substituted for an iron one, and large clinkers removed with the hand instead of turning them down with the ashes when a new fire is to be built.

The tone of the voice

Whispering is always exasperating to a sick person, and whatever conversation is necessary in the room or immediately outside the door should be carried on in low, quiet tones, but never in a stage whisper. One's manner of addressing a patient should be considerate, particularly if he is very ill. He should never be startled by loud or abrupt tones from behind, but having first gained his attention speak distinctly but with quiet voice. These suggestions

Hints for the inexperienced

are scarcely necessary to one who has had experience with sick people, but to the uninitiated, particularly if she be young and vigorous, without "nerves" herself, they may possibly be of value, as it is a most difficult thing to realize exactly how an ill person craves the relief from noise and confusion or appreciates any effort to minimize such for him.

FURNISHINGS OF THE SICK-ROOM

No furniture but essentials

As to the furnishings of the sick-room, the greatest simplicity is required both from the hygienic and from the æsthetic standpoints. The sleeping-room, even in health, should be a place free from the unnecessary adornment of heavy hangings and crowded bric-a-brac, gathering millions of microbes

which elude the most careful housewife. If possible, let the walls be painted some neutral tint restful to the eye, so that they may be easily cleaned, and have no more furniture in the room than is absolutely necessary for use. A bed, table, easy-chair, lounge, and screen constitute the essential furniture. A hardwood floor is best, but if it is necessary to carpet, straw matting is better than wool, and can be found in very attractive styles. Lightweight rugs that can be taken out and shaken every day may be used on the hardwood floor.

Avoid bad plumbing

A set-bowl in any bedroom is always objectionable, and is not to be tolerated if the modern method of open plumbing has not been adopted. The constant escape of poisonous gases by means of leaky traps is something that should be guarded against at all costs. But it is a simple matter, fortunately, to cover or plug up the escape holes, and water may be kept standing in the bowl if the bedroom is so equipped, though the better plan, of course, is to remove all plumbing to an adjacent room not used for sleeping.

The bed and its position

The most suitable bedstead for a sick-room is readily admitted to be the single or three-quarter size iron frame with double woven wire mattress and having a height of two or two and a half feet. This frame painted white can be easily and thoroughly cleaned, and its height makes it convenient for lifting and moving a patient. It should stand in the room in such a position that the patient does not directly face the light from any window, and also so as to be easily accessible from both sides.

Never a feather bed

In spite of the supposition that the feather bed has been relegated to the garret or made over into pillows, it is still necessary to emphasize the fact

that it is wholly unsuitable for an invalid's use. It is quite impossible to take proper care of a patient unless this is discarded. It retains the heat of the body, and if it becomes damp is an offence, if not a positive menace. It is also very difficult to lift a person from side to side as he lies in the hollow.

The hair mattress is, of course, the most satisfactory bed, yet some patients complain of the tuftings, and it must be admitted that if the strings give way the hair may move and cause irregularities in the surface of the bed. The mattress manufactured by the American Interlaced Curled Hair Company of Philadelphia, Pa., is especially sanitary, and as the hair is in sheets it requires no tufting and is easily kept in order. The ticking can be slipped off and washed, and as the interior itself is very porous it is cooler and can be more easily cleansed and fumigated than any other mattress more compactly made. In cases of long illness a second bed is of great value, and by bringing both beds close together the patient can be drawn on a blanket or stout sheet from one mattress to the other and the mattress thoroughly aired on a balcony or in another room every day. A mattress turned once a day does not readily get out of shape, but in case it begins to sag, a light shawl or blanket folded not too thick can be placed under the centre to keep it level. Mattresses should occasionally be wiped over with a cloth wet in some antiseptic solution and put out of doors to dry. A whisk-broom may be used instead of the cloth if preferred and the mattress thoroughly sprinkled with the solution.

Mattress without tuftings

The value of two beds

Care of the mattress

PREPARATION OF A SICK-BED

The pad and under sheet

To prepare a sick-bed, place first a stout pad to cover the centre of the mattress, and over this, drawn tightly and evenly, the bottom sheet, which should be neatly tucked in at the corners. Next should always come a protector of some sort large enough to extend from the edge of the pillow to within two feet of the bottom of the bed. This protector may be of black or white rubber, enamel cloth (which, however, cracks easily), or sheets of tar paper folded between newspapers, if rubber is not obtainable or if the patient has serious objection to its use on account of its heat. In cases where there is no immediate cause for the rubber sheet it may be placed next to the mattress, and thus serve to protect it in case of any accident occurring.

The protector and draw sheet

The rubber sheet is to be covered by what is known in hospital phraseology as the "draw-sheet," an ordinary-sized sheet folded with two hems together, though, if desired, a single piece of cotton of the width of the doubled sheet would answer the purpose quite well and be somewhat more easily laundered. This is put on so that the hemmed edges come at the bottom and the other edge high enough under the pillow to prevent the possibility of a restless patient getting the elbow under it. It should be tucked in at one edge evenly and then drawn as tight as possible from the other side, pulling always at the centre first, and, after tucking that in, making smooth the rest of the side. In tucking in the draw-sheet with a patient in bed, this method of procedure is essential if the sheet is to be made tight. The patient, if able, should lift the hips slightly while the sheet is being tightened.

Care about the draw sheet

A draw-sheet properly put on ought to add much to a patient's comfort, as it ensures a smooth, firm surface underneath the back and it can be changed so easily that the patient need have no sense of fatigue while it is being done.

Blankets rather than quilts

The covering for the bed ought always to be light, but sufficiently warm, and the top sheet should fold over the edge of the blankets to keep them from becoming soiled. Blankets, or even lightweight shawls, if one is reduced to an extremity, are far better than bedquilts of any sort, and two light blankets are warmer than one very heavy one, because of the layer of air between them which acts as an additional covering. The coverlet, if heavy, may be replaced by a sheet, though dimity is being sold now in place of the Marseilles or other heavier materials. At night it should be removed and folded neatly to keep it fresh for day use. In tucking in the clothes at the bottom of the bed, they ought not to be drawn tightly over a patient's toes, a fact which some nurses, overzealous for appearance, are apt to forget. In some cases where there is extreme nervousness or where the feet are particularly sensitive to any irritation, it is better not to have the clothes tucked in at all at the bottom. The comfort of the patient should never be sacrificed in order to gain a better appearance of the bed.

Comfort of patient first: appearance second

DAILY CARE OF ROOM

The daily care of the sick-room is most important. The room should at all times present a tidy and restful appearance. If the weather is cold a light shawl may be thrown over the patient's head and extra covering provided so that the apartment

may be thoroughly aired. This should be done both night and morning for a few minutes, and in cases where the air becomes offensive it should be done several times during the day. Frequent airing

If there is a carpet on the floor the surface dust can be removed by going over it lightly with a damp cloth wound round a broom. No thorough sweeping should be attempted with the patient in the room. A damp dust-cloth is also to be used for the furniture, so that as little dust is stirred up as possible. Soiled dishes and remnants of food should never be allowed to stand in the room, but should be removed at once after the patient has eaten. Frequently he will insist that it does not matter, or will even object to tidiness, but there is an unconscious feeling of rest that is engendered through orderliness of which he is himself quite unaware, and this should not be denied him. A little tact or playful insistence will usually remedy any objection on his part. The same thing is true in regard to the serving of meals to a convalescent or to some member of the family who is temporarily kept in bed and who thinks to save work by urging that he does not care how things are served. He may be quite honest in his feeling, and yet find that the dainty service tempts his appetite so that he is able to eat a far better meal than otherwise. To clean the carpet, etc. Of tidiness and orderliness

The necessary medicines, mouth-wash, pitcher of water, and all the paraphernalia of the sick may stand on a small table or shelf, placed if possible out of sight of the patient, as it is pleasanter to have all the reminders of sickness removed. A clean towel on the table looks more suitable than an elaborate table-cover, and a fresh sheet of white wrapping-paper laid over that saves laundry and may be changed every day or two as necessary.

In case of weekly cleaning

If the patient is able to be moved into another room there should be a weekly cleaning of the sick-room, with thorough sweeping, cleaning of brasses, beating of mattress and airing of blankets, since fresh air has germ-destroying powers that may be utilized by every one.

Of the need of squares of cloth

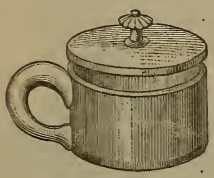
Large and small squares of cloth are needed for various purposes about the sick-room, and can easily be made and kept on hand for use when required. There should be several bed-pan covers, made of heavy cloth or doubled thicknesses of old sheeting, furnished with loops to hang by, and separate smaller cloths for wiping the bed-pan and the wash-bowl. It is convenient to have these latter of different size or of figured cotton, so that they can be readily distinguished from each other. Pieces of old sheets or toweling can be cut into convenient sizes and hemmed to slip under the bed-pan when it is used, and a quantity of small pieces of old cotton torn into squares of about six inches will be found useful for the necessary bathing after the bed-pan has been used. Absorbent cotton can of course be used for the same purpose, but is more expensive.

CARE OF UTENSILS

The care of the utensils in use about the sick-room must not be overlooked. The utmost cleanliness is necessary in regard to them. Bed-pans and urinals should be rinsed each time after their use with cold water, and then washed with scalding water and soap and dried with a cloth kept for the purpose. A weekly scouring with sapolio is necessary if the use of the pan continues many weeks. Sputum mugs should be boiled every day for twenty minutes, and a small pan kept expressly for this use.

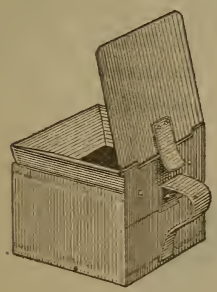
In preparing a mug for a tuberculosis or pneumonia case one should be selected which is smoothly glazed so that no germs may lodge in any crack. If this is neatly lined with toilet-paper, letting the paper entirely cover the edge and fold down over the out-

Special care of sputum mug

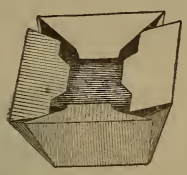


Glass Sputum Mug with Metal Cover

side of the cup, the lining can be very easily lifted out and burned and a fresh lining made. It is best to have two mugs, so that one may be in use while the other is being sterilized. A very useful cover can be made by cutting out a piece of cardboard the size



Metal Frame



Paper Filler

of the cup and putting a large safety-pin through the centre for a handle.

Excellent appliances for the use of tuberculosis patients are made, consisting of a papier-maché form which is inserted in a covered metal holder.

Keep the sick-room dishes separate

In nursing cases of cancer, tuberculosis, typhoid fever or contagious diseases, care must be taken to keep all dishes, knives, forks, and spoons used in the sick-room separate from those in general use. It is better to keep the sick-room dishes upstairs, and to have a small dishpan in some convenient place for

Invalid's Drinking Cup

washing them, so that they need not be sent to the kitchen, as errors are apt to occur and the dishes get mixed. They are best disinfected after they are no longer needed by boiling them for half an hour.

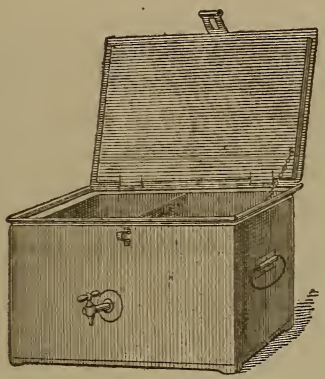
Little conveniences for saving steps

There are a few things which, if conveniently arranged, can save many steps on the part of the nurse. If a patient is on fluid diet, or it is necessary to heat water continually, it is always possible to have a

Woven Wire Mat

saucepan and some device for heating liquids which may be kept in an adjacent room or in the hall. Also a dishcloth and towel can be kept at hand so that the glass and saucepan may be washed as soon as used. A very simple arrangement for heating, if gas can be used, is by means of a woven wire mat which can

be bought for a few cents, and is intended to rest on the gas globe. This will hold quite a good-sized pan and heat its contents very quickly.



A Nursery Ice-Chest

A nursery ice-chest, which is a tin box with two or more compartments, is an ideal thing to hold the milk and foods that are being used constantly. A

An ice chest

Water Cooler

very good substitute can be planned for use in cool weather by having fastened outside the window a large uncovered soap-box, with the open side facing

the room. This can be protected by a piece of white enamel cloth tacked on to form a curtain over the front, and the whole thing can be kept sweet with soap and water.

Milk and butter should have special care

Food must never be allowed to stand in the ice-box till it becomes old, and milk and butter should have a separate compartment if possible, as their flavor is very easily affected by strong-smelling foods. The ice-box should be looked over every day, and the shelves wiped with a damp cloth. Once a week there should be a thorough cleaning with washing soda and warm suds followed by careful drying in the sun if possible.

II

GENERAL CARE OF BED PATIENTS

Structure and Function of Skin—The Cold Bath—Frequency of Bathing in Sickness—The Bed-Bath—The Foot-Bath—Care of the Hair—Care of the Mouth—Changing Sheets for Bed Patients—Changing Night-Dress—Prevention of Bed-Sores—Lifting and Moving Patients—Mechanical Appliances

THE comfort of a sick person, whether he realizes it or not, depends upon clean surroundings, a clean body and the ease with which his wants are attended to. This ease is one of the gifts which experience, particularly trained experience, gives. It means that the added burden sickness has brought is not made apparent to the patient, that the little wants are met before they are realized, and that the responsibility of medicines and nourishment is given over by him with a sense of relief; in short, that freedom from care and anxiety is made possible, and with it that absolute rest of body and mind which adds greatly to the chances of a speedy recovery.

The gain from absolute rest of mind and body

The subject of bathing and its importance, both in health and in sickness, is so familiar to the students of hygiene and lovers of good health, that we are apt to forget the great number of people who have little sympathy with what they consider the fads of would-be reformers. The ignorance of this great number about the necessary function of the skin and its delicate structure makes their proper care of the body very dull and perfunctory work, if indeed they do not actually neglect it.

STRUCTURE AND FUNCTION OF THE SKIN

Scarf skin

The skin is in two layers. The upper or scarf skin is what is raised as a blister when one is burned, and this is constantly rubbing off in minute scales. We are generally unconscious of this, though we can easily recognize it in the dandruff and in the dried skin that we find on an arm or leg that is left for weeks in a bandage or splint. Although this scarf-skin is constantly being shed, it is as constantly being renewed from the second layer, called the true skin. This upper skin is not sensitive at all, while the under layer is supplied with blood-vessels and nerves.

The two layers of skin under a microscope

Under the microscope we see that these two layers of skin are composed of a multiplication of tiny bodies which are called cells, the upper ones being very flat and horny, while the lower ones are larger and irregular in outline. As the lower cells grow, they push up toward the top and become flattened, so that as scarf-skin they are the tiny scales we can see. This is going on constantly all over the body, whether or not we can detect it, and the principle is just the same as that which makes the swelling buds push off the old year's leaves.

The perspiration

Another substance that is present on the skin at all times is perspiration, which is constantly being poured out from small glands found in the true skin. At an ordinary temperature, when we are in health, the amount of perspiration is insensible, but as we all know in certain diseases, or when the temperature is raised from any other cause, it is poured out in large quantities.

The sweat is not wholly water. In health it contains some salt, and in diseases of the kidneys, when they do not perform their proper amount of work, it

also holds some of the waste matter of the body, which would otherwise be carried off in the urine. What it contains and accomplishes

Sometimes in sickness a person can not be made to perspire sufficiently, and when by means of medicine and treatment we find the skin growing moist we regard it as a sign of returning health. By this we see that the elimination of water from the body through the pores of the skin is a very necessary process as a means of regulating the heat of the body, and that anything that interferes with the free action of these glands must be guarded against.

The third substance that we find excreted on the skin is a sort of oil which is also contained in little glands. This serves to keep the skin soft and flexible, particularly to lubricate the hair and to keep it smooth and glossy and also to protect the body from moisture, exactly as the oil enables the birds' feathers to shed water. The openings from these glands are larger in some parts of the body than in others. For instance, we find them very large and apparent about the nose, and when they become clogged with the secretions they are still more enlarged and form what we know as pimples. The lubricating oil

There also escapes from the skin some gases like what we exhale from the lungs, and it is capable, too, of absorbing small quantities of substances that may be rubbed upon it. It is for this reason that patients, particularly babies that are losing flesh, are rubbed with oil or milk, though this is not considered as important a function as it once was. The skin's exhaling and absorbing powers

To sum up then, we should say that the skin is protective—that it is a helper to the kidneys in getting rid of the waste of the body in the perspiration and to the lungs in getting rid of some of the carbonic acid gas; that it absorbs to a limited extent substances What the skin does in protection

rubbed over the outside layer and very rapidly absorbs those injected beneath the upper, or scarf, skin; and that, finally, through the sweat glands, it is a powerful regulator of the heat of the body.

Consequent values of the bath

It is easy to feel the significance of the bath as regards health and comfort in the face of these facts relating to the structure and function of the skin. All these glands are essential to our well-being. If they are clogged in any way we feel the results. On account of the oil that is present the warm bath at least once a week is advisable. Plenty of soap, warm water, and a thorough drying afterward, taken at night, clears up the skin, relaxes the muscles, and makes the chances for restful sleep more sure.

But it is the value of the daily cold sponge that we need to emphasize.

THE COLD BATH OR SPONGE

Daily cold sponge

In our changing climate we are very liable to colds. If we only realized what a safeguard the splashing cold sponge is there would be more willingness to overcome the first unpleasantness of the use of cold water in the winter.

Its effects

The first effect of the cold bath is to drive the blood from the surface, to reduce the temperature of the body and to retard the action of the heart. A natural reaction should take place under normal conditions, and the blood be sent to the surface of the body with a general quickening and stimulation of the circulatory and respiratory centres. If this reaction does not occur and if a feeling of pleasant, tingling warmth does not follow, the cold bath is not beneficial.

If one accustoms the chest to the splash of cold

water followed by a vigorous rub which leaves the surface red and glowing, the resistance to cold is greatly increased.

Another advantage in the daily bath is the fact that the body is exposed to the air at least once a day. We keep our bodies so securely wrapped from the air that draughts are dangerous and the ordinary change of passing from warm rooms to cool out-of-doors brings on colds.

Value of air on the skin

If for any reason the daily bath is impossible, a brisk rub with a coarse towel or brush fulfils to a certain extent the same purpose.

Dry bath

These facts which we emphasize as so important in health one can easily see are vastly more potent in sickness, for at such times the excretions of the skin arise from a diseased body.

In most cases a daily warm sponge bath is of positive benefit to a patient, though if there is extreme weakness the entire surface of the body should not be bathed at one time, and it may sometimes be better to substitute for the soap and water bath an alcohol sponge, wiping off the surface of the body and refreshing the patient without fatiguing him.

Daily warm sponge benefits the patient

FREQUENCY OF BATHING IN SICKNESS

In ordinary cases of sickness, then, we may say that a daily bath is called for and very rarely is there any danger of injury to the patient arising from it if proper care is taken not to chill or to fatigue him. The windows should always be closed, and the room made sufficiently warm before beginning.

Guard against chill and fatigue

Baths given in sickness are varied in kind and purpose, but it is seldom that anything other than the cleansing bath or alcohol sponge would be called for

in the home without the aid of a nurse especially trained to administer it.

THE BED-BATH

Have everything at hand

Before beginning a bed-bath everything required for use must be at hand—a basin, soap, hot and cold water, slop-jar, face-cloths, towels, and clean linen—as it is annoying to a patient to be left in the midst of his bath while the nurse goes after some forgotten article, and it is evidence of poor management if this occurs.

The patient between blanket and towel

The patient is now to be placed between blankets, and the bedding removed. A very convenient plan if two blankets are not available, and it is often simpler in any case, is to substitute for the under blanket a large Turkish towel which can be slipped under the different parts of the body as they are being bathed and thus protect the bed as a blanket would do. After a towel has become thoroughly damp it should be replaced by a fresh one. A sponge or flannel wash-cloth will retain the heat better than cotton. Only a small part of the body should be exposed at a time and that thoroughly washed and dried before going on. The water should be kept comfortably warm, and changed once during the bath. All fresh linen must be well aired and warmed before putting on the patient and careful attention given to the hair, mouth, and nails.

THE FOOT-BATH

The process of the foot-bath

A foot-bath in bed can be easily managed, and is sure to be refreshing to the patient, who lies on his back with knees flexed and the top covers turned back over his body. The lower part of the mattress is then covered by a folded blanket, over which is laid a

towel. The foot-tub is placed on this, the feet gently lowered into the water, and the top blanket drawn back over the tub. After removing the bath the feet rest on the towel and must be left thoroughly dry and warm.

THE CARE OF THE HAIR

The combing of the hair is a detail of the toilet which most patients dread, yet this is quite unnecessary if it is properly done. If arranged in two braids it is both comfortable and easily cared for, even if a person is very ill or can not lie easily on her side, and it should never be allowed to become snarled or matted. If it is braided closely once, or in case of unusual restlessness twice, a day, there will be no difficulty in keeping it free from snarls. It is surprising to find how many people do not realize the need of this daily care of a patient's hair, and having once neglected it during the critical part of an illness find it so matted that they are helpless, and perhaps have it cut when there is really no need.

Hair best kept in two braids

If the hair becomes matted it needs only to be wet with alcohol and left a few moments to dry, when the tangles can then be picked out lightly with the fingers if one has a sufficient amount of patience. No hair need ever be sacrificed if this method is remembered, though it may take many hours of labor at different intervals to remove all the snarls. In combing, begin always at the ends of the hair, holding it firmly, but without exerting any tension on the scalp. If the hair has been wet with blood, as in the case of a scalp wound, the clots can be removed by the use of a solution of soda.

Treatment when the hair is matted

A shampoo may be managed easily in the convalescent days by placing the patient across the bed so that

Shampoo for the convalescent

the head pillow lies along the side. The pillow should be protected by a rubber sheet and the hair washed in a basin placed on a low table or chair by the bed. A little alcohol rubbed afterward in the scalp will help to dry it quickly and prevent the patient from taking cold. If a cot bed is used it will not be necessary to change the patient's position, as the same thing can be done at the head of the cot.

In case of the accident of vermin

Sometimes one is confronted with the unfortunate problem of the best way of removing lice from the hair. The routine practice recommended in the large schools of New York, where there is constant inspection of the heads, is to wash the hair and scalp thoroughly with kerosene and leave the head bound up in a towel overnight. The kerosene, though unpleasant to use, has a good effect upon the hair and scalp. In the morning hot vinegar is applied to destroy the nits. This can be poured upon the hair, but since its effects are not specially beneficial it is better to dip a fine-tooth comb into the vinegar and to thoroughly moisten the hair while it is being combed. The vinegar softens the gelatinous substance which attaches the nits to the hair, so that they come off easily.

Another treatment that is invariably effective is a thorough wetting of the scalp and hair with tincture of larkspur, which is left overnight in the same way. It is not necessary to follow this treatment with the vinegar. A second application may be demanded if it is found that the first has not been successful in destroying the nits.

And contamination at school

If children are in a public school where this trouble is common it is much wiser not to keep the hair very long, and absolute vigilance is necessary in order to make sure that the heads are perfectly free from vermin, as, once started, the nits appear very

rapidly. A neglected head means that eventually an eczematous eruption appears, which is due directly to the presence of the vermin.

THE CARE OF THE MOUTH

The care of the mouth during sickness must not be overlooked. If the patient is not too ill, the teeth should be brushed night and morning, but if that is impossible small squares of muslin or bits of absorbent cotton wet in a boracic acid or listerine solution may be used to wipe the tongue and gums. A mild solution of boracic acid (half a teaspoon to a glass), or a few drops of tincture of myrrh in a glass of water, makes a good mouth-wash, and if a patient is on milk diet, it is necessary to wipe out the mouth frequently in order to keep it sweet and clean.

Cleaning with brush or cotton

In cases of pneumonia or typhoid fever, where the mouth and teeth accumulate an offensive and tenacious substance known as *sordes,* it is necessary to use a mouth-wash which will help to cut this substance and make it more easy of removal. Equal parts of lemon-juice, glycerine, peroxide of hydrogen, and water used freely both night and day will keep the mouth in as good condition as is possible.

The sordes of pneumonia and typhoid

In such cases, as will be seen later on, the fingers should not be introduced into the mouth unless a rubber cot has first been put on, because of the danger of infection, and if a cot is used it should be kept in a solution of boracic acid or other harmless antiseptic. Swabs made of cotton wound round a toothpick can be used instead, and burned at once.

CHANGING SHEETS FOR BED PATIENTS

To change the sheets with a patient in bed, it is necessary first to fold the fresh draw-sheet and lay it

in large plaits ready to slip under the patient. He is turned on the side most easy for him, the bedding loosened, and all covering but the top sheet and a light blanket removed.

The under-sheet, rubber sheet, and draw-sheet

The under sheets in succession, including the rubber, are then rolled as near as possible to the patient's back, while the clean under sheet which has been tucked in firmly at top and bottom follows closely the soiled one. The rubber sheet is now unfolded and put back over the fresh under sheet, and the draw-sheet laid over it and tucked securely in at one end, the other folded portion being drawn closely to the patient. If this has been done carefully the roll of soiled and fresh sheets can be easily flattened, the patient gently rolled over it, and the other side of the bed made.

To change the top sheet

To change the top sheet, first lay the fresh one over the soiled, and while the top one is being held by the patient, if he is able, draw the other from under it so that there may be no exposure of the body.

CHANGING THE NIGHT-DRESS

To change the night-gown is simple

The changing of a night-dress on a helpless patient seems a very wonderful thing to those who for the first time are watching it done by skilled hands, yet it is a very simple matter, and requires only a little practice to accomplish without fatigue to the patient. The fresh night-dress, arranged to slip easily over the head, is first placed on the patient's chest. The soiled one is then gradually drawn up from under the back until it is well past the shoulders, when the sleeves can be easily slipped off, the head gently lifted, and the soiled night-dress exchanged for the fresh one. The nurse should slip her own hand through the fresh

sleeves at the wrist and, gently grasping the patient's arm, draw it through so that no effort on his part is necessary, and finally the rest of the night-dress must be pulled smoothly into place. The use of a short night-dress open in the back is sometimes of great value with very ill patients, especially if frequent sponging is required, since it can so readily be slipped off. Any plain nightgown can be utilized for this purpose with very little trouble.

Value of short night-gown

In removing a nightgown or other garment from a person having a disabled arm, it is necessary to take off the sleeve from the well arm first, in order to give plenty of room for the other, and in putting on a garment the process is reversed for the same reason.

THE PREVENTION OF BED-SORES

In cases of wasting disease or with aged or paralyzed patients, there is a tendency to the formation of bed-sores, and unless one has had some experience it is hard to realize in how short a time such a sore can make its appearance nor what extreme vigilance is necessary in order to prevent it.

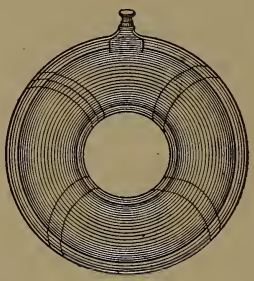
Vigilance to prevent bed-sores

A bed-sore is really a part of the tissue of the body which is cut off through pressure from the circulation of the blood and which therefore becomes dead tissue. It is caused, as stated, by unrelieved pressure accompanied usually by heat and moisture, and those parts of the body where the bones are nearest the surface are naturally the places to be specially guarded. The hip-bones and base of the spine, the elbows, shoulder-blades, heels, and even the tips of the ears should be closely watched for the slightest indication of redness or pricking sensation, which gives the first warning of danger. If possible the position should be

Where they appear

changed from time to time, or if there is any reason why that can not be done some measures must be taken to relieve pressure. A rubber ring is useful for the spine or hips if it is not blown up enough to make it hard. A very slight amount of air in the ring will be

The ring and horse-shoe



A Rubber Ring

sufficient to lift the pressure and will prevent its being uncomfortable. The "horseshoe" air cushion, though more expensive than the ordinary round rubber ring, is very much more comfortable and more sanitary on

Horseshoe Air-cushion

account of its construction. Small soft rings made of cotton and wound with a bandage are very useful for lifting an elbow or heel, and can be renewed as they become soiled or out of shape.

Besides the relief from pressure there must be an effort to increase the blood supply in the part in order

to build up new tissue. As in the case of the sick body as a whole we aim first at cleanliness, so here we do the same and bathe with soap and water, following this by the application of pure alcohol and gentle friction with the ball of the thumb, working always toward the centre. The alcohol helps to harden the tender skin and the massage forces the blood through the surrounding tissue. Another measure for establishing better circulation is the use of hot douching of the part, followed by cold. Care must be observed that the water is not hot enough to scald the tissues. This should be kept up for at least ten minutes night and morning. A little zinc oxide powder may be used to dust the surface and assist in absorbing moisture. Powders as a rule are better omitted, as they are apt to cake and form hard particles which do more harm than good to the tender flesh.

Alcohol and gentle friction

Douching and powder

It is necessary that the bed should be kept absolutely dry and smooth. Crumbs must be brushed out and the wrinkles smoothed frequently. It is sometimes difficult to accomplish this, especially in the case of a paralytic or aged person when there is incontinence of urine to fight against. However, by the use of a sufficient number of thick pads about fifteen inches square, made of absorbent cotton covered with gauze or cheesecloth, it is possible to keep the bed dry, and the patient need never be left to lie on wet sheets. It is quite possible that the patient will object to such frequent disturbance as the changing of the pads requires, for at night also there will need to be several changes, but no objection on the part of the patient can outweigh the importance of this task, and a little tact and sweet temper, which we remember is always at the nurse's command, will usually pacify the unhappy one.

How the keeping of the bed helps

Of need of frequent bathing

There should always be special bathing with warm water after urination. This is essential not only in order that the patient may be kept quite clean and free from unpleasant odors, but because when a bed-pan is being used the urine runs back between the buttocks and is sufficiently irritating if left to dry to cause chafing and sometimes even a slight fissure.

In case of skin abrasion

If once the skin becomes abrased the alcohol can of course be used only round the edges of the bed-sore, which we must then regard as an open wound and treat accordingly. The advice of a doctor should be sought in such cases. It is always necessary to apply a dressing at once and small thin pads of absorbent cotton covered with gauze or clean linen and fastened in place with strips of adhesive plaster will protect the sore from infection.

LIFTING AND MOVING PATIENTS

The expert lifting and moving of patients requires much practice, but a few hints may be useful in preventing the awkwardness one feels who has never taken care of sick people.

Do not drag or pull the patient

In moving a patient from one side of the bed to the other it is not necessary either to drag or pull him over. One arm should be placed obliquely under the shoulders with the hand supporting the back, while the other is carried over and under the other shoulder. In this way half of the body can be lifted on to the fresh side. Then with one hand and arm under the lower part of the back and the other below the hips, the rest of the body can be drawn into place very gently. If the patient is able, he can assist by clasping the hands around the nurse's neck.

In raising a patient in order to readjust pillows,

support is given in the same way with the head resting on the nurse's shoulder, while her free hand changes the pillows. In changing pillows

To lift toward the head of the bed, the hand and arm are placed under the back as indicated above, and the other hand under the hips, and the patient lifted gently and steadily. If two people join in lifting, one on each side, in this way even a very heavy person can be easily moved. When two join in lifting

To change a mattress with the patient in bed assistance is necessary. One person draws the mattress with the patient on it half way off the bed while the other mattress is slipped into place. The patient is drawn across by means of the sheet on to the fresh mattress, which can then be slipped the rest of the way on to the bed. Method of changing the mattress

If a patient is to be lifted on to a couch or easy-chair, it must be placed with the head toward the foot of the bed and near enough so that the persons lifting need take only a few steps. They should stand both on the same side of the bed and carry hands and arms well under the shoulders and buttocks of the patient, and then by simply wheeling about the couch can be reached. To change the patient to a couch

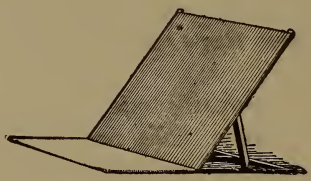
MECHANICAL APPLIANCES

For a patient who is to sit up in bed the bed-rest is a very useful article, and the best kind is that having a simple wooden frame with canvas support. This can be put at various angles as desired, and with a hair pillow at the bottom to give firm support to the lower part of the back, and a small pillow for the head, the patient can be made comfortable. It is best for him to have either a pillow under the knees or one to brace the feet against, so there need be no feeling The bed-rest

of effort to keep from slipping toward the foot of the bed.

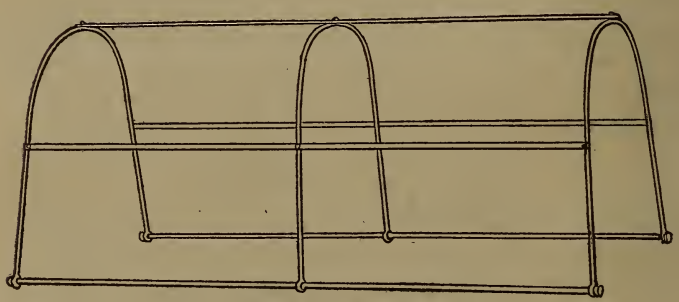
The knee-pillow

The knee-pillow also gives great relief to a patient suffering from any abdominal pain, as it supports the legs in a flexed position and so relaxes the muscles of



Canvas and Wood Bed-Rest

the abdominal wall. The pillow should be a feather one, medium-sized, and not too thick, and it is best to have it covered with a rubber case under the linen one. A pillow tucked close to the back when the patient is lying on one side or against the abdomen if



A Cradle to Lift the Clothes

there is pain there, when in the same position, relieves the strain somewhat and is found grateful to him. Small, soft pillows made of absorbent cotton, if nothing better is at hand, are much appreciated by patients, and can be tucked in various places to relieve pressure,

as between the knees when lying on the side or to lift an elbow or shoulder from the mattress.

In arranging pillows to take the place of a bed-rest it is necessary to have four or five of good size, and they should be piled with each additional one placed behind the others in order to give the firmest support. A very useful though not elegant substitute

Substitute for the bed rest

The Iron Standard Bed Table

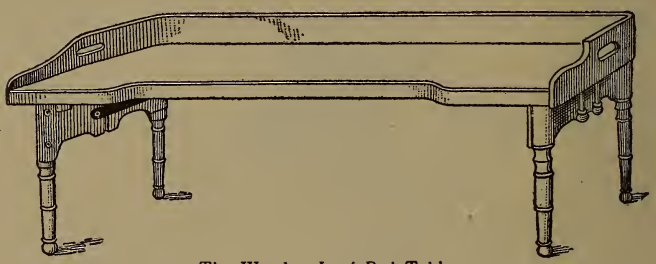
for a bed-rest is a straight-backed chair inverted so that the back makes an inclined plane against which pillows can be laid. A bandage or other stout piece of cloth which is long enough if fastened securely to the foot of the bed serves as assistance to a patient not able to raise himself easily alone.

An aid to a patient

In some cases a frame known as a "cradle," which can lift the bedclothes from a sensitive body

A cradle to lift the clothes

or limb, is very much needed. These can be bought cheaply, but a very satisfactory one can be made in a short time by means of three or four split barrel-hoops wound tightly with bandage and fastened at the ends to two straight pieces of board about one and a

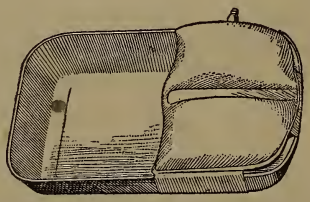


The Wooden Leaf Bed Table

half feet long. This placed in the bed over the affected part affords relief and comfort.

Bed tables

There are two kinds of bed-tables. One has an iron standard which can be drawn close to the bed, and a wooden leaf reaching over it which can be fastened at any desirable height by means of a screw.



Trabaud Back Protector on Douche Pan

The other is a simple, light, and low table which can be placed on the bed with the legs resting on either side of the patient's body. A very good table can be fashioned with a cutting-board and a few books placed on either side of the patient to give it support.

A great need has been met in the appliance known as the "Trabaud Back Protector," which is a cushion that can be attached to the douche or bed-pan, and removes entirely the pressure upon the spine. It can also be used as a pillow after it has been detached from the pan if desired.

Device to remove pressure from the spine

III

ENEMATA, SUPPOSITORIES, AND DOUCHES

Administration—The Laxative Enema—The Purgative Enema—The Nutritive Enema—The Starch Enema—The Turpentine Enema—Rectal Irrigation—Suppositories—Douches—Gargles, Sprays, and Inhalations—Care of Utensils

THE general term injection indicates the introduction of fluids into the body. When they are carried into the intestines through the rectum we speak of giving enemata, though the general term injection is commonly made a specific one, and used instead of enema.

Definition of enemata

There are many different kinds of enemata, as there are various purposes in their use. The classification as given in Isabel Hampton's "Text-Book on Nursing" is as follows:

Laxative

Simple laxative and purgative enemata.

Nutritive

Nutritive enemata for the introduction of nourishment.

Sedative

Sedative enemata for local or systematic effects.

Astringent

Astringent enemata, which check hemorrhages and diarrhœa, *e. g.*, hot water or ice water, solution of alum or nitrate of silver.

Emollient

Emollient enemata for soothing irritated and painful mucous membranes. Starch and certain drugs are used in solution for this purpose.

Antispasmodic

Antispasmodic enemata, to relieve flatulence, in which, for example, turpentine is used in solution.

Anthelmintic

Anthelmintic enemata for destroying worms: salt, turpentine, and quassia are used in solution in this way.

Antiseptic

Antiseptic or germicidal enemata, used in the various forms of dysentery.

THE LAXATIVE ENEMA

The laxative enema may be better if the bowels are particularly sluggish, and the use of olive or cotton-seed oil or a little glycerine will usually be sufficient to correct the difficulty. Six ounces of oil should be warmed to blood heat by placing it in a vessel of hot water and then very slowly injected by means of a hard rubber syringe with a soft rubber tube attached to the nozzle. It is important that the oil be given with great deliberation, in order that it should be retained easily. The warming of the oil is necessary for the same reason, because oil injected cold will cause pain and there will be an intense desire to reject it at once. The use of the hard rubber syringe is better,

The method of the oil enema

Hard Rubber Syringe

because oil is injurious to the soft rubber and a bag once used for oil enemata is soon destroyed.

The oil enema is best given at night and followed by a soap-suds enema in the morning, though if for any reason it seems more convenient, the oil may be given in the morning and retained for an hour or two previous to the soapy enema.

One should be somewhat cautious in the use of glycerine, since its effect is to increase the peristaltic action of the bowels, and in some cases its irritating properties are so great as to cause an inflammation of the mucous membrane lining the intestines, producing pain and diarrhœa. In such a case much relief can be afforded by an irrigation of the bowel with normal

Care in glycerine enema

salt solution, the use of which will be spoken of later.

The glycerine enema is usually given in amounts varying from half a teaspoon to half an ounce and diluted with an equal quantity of warm water. It is seldom necessary to follow a glycerine enema with a soap-suds one, as with the use of oil.

THE PURGATIVE ENEMA

A purgative enema is made with drugs, such as turpentine, castor oil, or Rochelle salts. In obstinate cases of constipation, the enema may be given high up in the bowel by the use of a soft rubber catheter or rectal tube attached to the end of the syringe and inserted six or eight inches.

Caution against the enema

The bowels should not be allowed to become accustomed to the habitual use of the enema, as by so doing the natural action is weakened. Various means of overcoming the tendency to constipation will be cited in a later chapter.

THE NUTRITIVE ENEMA

The nutritive enemata are resorted to when feeding by the stomach needs to be suspended or supplemented by additional nourishment to be administered per rectum. Concentrated foods are employed and the physician in charge of the case will usually wish to suggest the formula for use. Two simple formulæ are as follows:

Concentrated food

1. One whole egg,
   Pinch of table salt,
   Three ounces of peptonized milk,
   Half an ounce of brandy.

Or, 2. The whites of two eggs,
   Two ounces of peptonized milk.

Each one of these makes about four ounces, the amount that should be given at one time. It should not be given oftener than once in four hours or six times in the twenty-four hours. The frequency, however, will be regulated by the physician, according to the special requirements of the patient.

The absorptive power of the rectum is less than that of any other part of the intestines. This kind of enema therefore should be given as high as possible, using the rectal tube or soft rubber catheter for the purpose.

Nutritive enema given as high as possible

A simple enema should precede the first nutritive one, in order to clear out the bowel, so that ready absorption of the nutritive substance can take place. If there is a continued use of the nutritive enema, we shall find that some part remains unabsorbed in the bowel, causing irritation of the mucous membrane as it decomposes. It is therefore necessary that the intestines should be flushed with warm water as often as once in twelve hours in order to free the bowels of the unabsorbed material.

After care

Medication may be given rectally when it is likely not to be retained if given by mouth. It should always be given with the tube inserted at least six inches. In case of hemorrhage from the bowels, hot water or ice water injections may be ordered and should be given with a fountain syringe hung rather low so that the force of the stream of water will not be too great.

THE STARCH ENEMA

In cases of dysentery or diarrhœa, a starch or gruel enema is frequently useful. The starch should be cooked as for laundry use and thinned till it can pass easily through the syringe. It should be given slowly and gently through a rectal tube.

How made

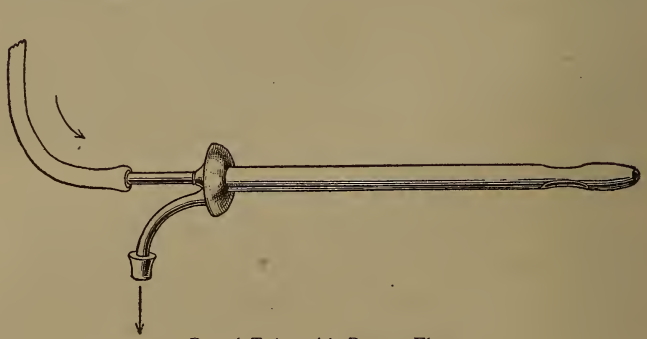
THE TURPENTINE ENEMA

Guard against burning

The turpentine enema may be given in cases of distressing flatulence and frequently affords great relief. Ten drops to a pint of water is the amount generally used, and it should be very thoroughly mixed with the water, in order to guard against the possibility of burning.

RECTAL IRRIGATION

Rectal irrigation differs only from enemata in that the water is not meant to be retained in the bowel, the object being merely to wash out the irritating substances there which may be the occasion of a diarrhœa. The water is allowed to run slowly into the



Rectal Tube with Return Flow

bowel and may be expelled at once. It should be continued until the flow of water is clear, showing that the bowels are freed from irritating matter.

The tube for rectal irrigation

A rectal tube with return flow is convenient for giving an irrigation, since it obviates the necessity of inserting the tube several times, though if done carefully this need cause little irritation.

A salt solution (one teaspoon of common salt to a

pint of warm water) is generally used for irrigation, as it is at the same time somewhat stimulating. In cases of shock or collapse or with very weak patients, the saline or salt solution enema is often ordered. Introduced in this way it is taken up quickly by the tissues and increases the volume of the blood supply, which has become depleted and thus renders the heart's action more normal.

The salt solution enema

For the green stools so common in the case of babies, rectal irrigation twice a day at first, and as the stools improve once a day, together with careful feeding, is often a means of entirely correcting the trouble.

SUPPOSITORIES

Suppositories are small solid cones of various sizes, usually made of cacao butter and medicated. These are largely used for introducing into the rectum to take the place in a measure of enemata, and, though retaining their shape under ordinary conditions, melt readily at the heat of the body.

The suppository should be oiled with vaseline and carried with the index finger gently into the rectum. The finger should be inserted its entire length, and if the patient at the same time bears down as if to expel it, a certain amount of suction is produced which carries it further up into the bowel. By holding the finger, after it has been removed, a moment over the opening to the rectum till the bowel has become accustomed to the foreign body, there will be less likelihood of its being expelled. A suppository should act in fifteen or twenty minutes, and meantime the patient should remain quiet in the recumbent position.

Introduction of the suppository

DOUCHES

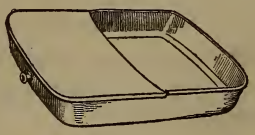
Definition of douches

By the term douche is meant "a jet of fluid directed with a certain amount of force upon a limited surface external or internal." Those given internally are the nasal, aural, and vaginal douches.

Douches may be either of plain water or medicated, and are given for cleanliness, to reduce inflammation and for the purpose of stimulation.

Vaginal douche

The vaginal douche of plain water given for cleanliness should be tepid, and a quart or a quart and a half is a sufficient quantity. The hot douche, ordered to check hemorrhage or to allay inflammation of the pelvic organs, is given in larger quantity—from two to four quarts being the amount usually used—and at a



Douche Pan

temperature ranging from 112° F. to 118° F., according as the patient can bear the heat. The prolonged application of the hot water causes after the first expansion of the blood-vessels a contraction which is more or less lasting and by that means hemorrhage is checked.

Position of the patient

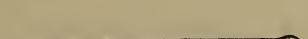
Any medication which is to be given in the douche should be included in the last quart. It is necessary that the patient should be in a recumbent position as a douche is of very little effect if taken sitting. Furthermore it is always advisable that she remain lying down for a half-hour after the douche, as it has a somewhat weakening effect upon the tissues.

Douche pans may be bought at little cost, or in case of emergency a new tin pan large enough for the patient's buttocks to rest in can be utilized successfully. The fountain syringe is generally preferred for giving douches, as the flow of water is steady and under low pressure. If used after operative cases, it is wiser to hang the bag rather low so that the force of the stream may not be too strong upon the bruised tissues.

The best nozzle is the glass one, which can be kept absolutely clean by boiling for twenty minutes. Care must be taken in the use of glass or metal nozzles, that they are not inserted too hot, as they retain the heat, and there is danger of burning the delicate membrane lining the vagina.

The glass nozzle best

The water must be allowed to pass through the tube before the nozzle is inserted, to expel the air and



Glass Nozzle

cold water as in the case of any injection. The perforations of the nozzle should always be at the side, never in the end as in that used rectally, since in that case there would be danger of injecting the fluid into the uterus and thus causing serious trouble, particularly in confinement cases, where the mouth of the uterus remains partly open.

Use extreme care

For douching the ear, a medicine dropper makes a very good nozzle. It can be attached to the tube of a fountain syringe and the flow can be governed by pressure of the fingers. It is important here, as in vaginal douching, that the force of the stream of water is not too great. By drawing up the tip of the ear very gently, the auditory canal is straightened, giving

In douching the ear

more ready access to the inflamed area. Cold water should never be injected into the ear.

Nasal douche and necessary care

The same precaution against the use of too great force in douching is applicable to the nasal douche, as there is danger of perforation of the extremely delicate tissues, if care is not exerted in its use. The use of the nasal douche should never be made habitual. Physicians who make a specialty of ear diseases object particularly to this method of treatment, since it often sets up an inflammation of the ear. If an attempt is made to blow the water forcibly out of the nose, one can feel it distinctly in the passage leading to the ear. It is in this way that the harm arises, consequently if the nasal douche is used the head should be held down and the water allowed to drain out of the nose before the handkerchief is used at all.

GARGLES, SPRAYS, AND INHALATIONS

Use of gargles

Gargles are employed for cleansing and medication of the throat and tonsils. A generous swallow should be taken and used vigorously for four or five successive times, and as frequently during the day as directed or as indicated by conditions.

A severely inflamed throat in which the mucus collects rapidly should be gargled as often as once an hour. In mild conditions three times a day may be frequent enough. After the use of an acid gargle the mouth should be thoroughly rinsed with a solution of some alkaline substance, such as bicarbonate of soda, to counteract the effect upon the teeth of the strong acid.

In sore throat

For simple sore throat a glass of water with a teaspoon of salt or alcohol diluted two-thirds with water, makes a good gargle. For tonsilitis, peroxide

of hydrogen one part in five of water is very cleansing and gives great relief.

Insufflation, or the blowing of a powder into a cavity, may be accomplished by means of a glass tube or a hollow roll of stiff paper containing the prescribed powder. This must be placed far back in the throat and can usually be forcibly inspired by the patient, though if necessary the nurse can blow the contents through the tube. The atomizer is in general use now for spraying the nose or throat, and its use needs no explanation. Inhalation of steam can be given by means of a pitcher of boiling water, having closely fitted over it a thick paper cone with a hole large enough for the patient to breathe through. In this way none of the vapor is lost, and the patient receives it by the mouth and exhales through the nose. This treatment often affords great relief in cases of severe bronchial cold when there is considerable difficulty of breathing.

Insufflation

A simple atomizer for bronchial colds

CARE OF UTENSILS

After a syringe has been used it must be washed in soap-suds, rinsed in hot water, and hung up to dry. It should never be put away in the box wet. Hard rubber syringes, if not frequently used, are apt to leak. The leakage can usually be avoided by soaking before use in hot water, which swells the washers sufficiently to make them tight.

Care of syringe

The nozzle, after being washed, should be left standing in a solution of carbolic acid. The long rubber rectal tube or soft catheter, after being thoroughly washed, can be boiled two or three moments before it is put away. This softens the rubber somewhat, and eventually spoils the tube, so that if left standing for

Care of nozzle and rectal tube

some hours in a strong solution of carbolic acid the same end is attained.

Getting the bed-pan ready

A bed-pan should be warmed by allowing the hot water to run over it before giving it to a patient. If the patient is very stout and it is difficult to get it into place, the edges may be oiled a little. Sometimes, with very thin or emaciated patients, it is necessary to pad the edges of the bed-pan, as a bed-sore may be started from frequent or careless placing of the pan.

IV

OBSERVATION OF SYMPTOMS

Circulation—How to take Pulse—Temperature—Use of Clinical Thermometer—Respiration—Observation of Symptoms

ANY ONE who has the care of the sick should know how to observe accurately the changes in temperature, pulse, and respiration, since these are essential guides to knowledge of the progress of disease.

What use temperature, pulse, and respiration serve

CIRCULATION

Some idea of the structure of the organs of circulation and the office of the blood may possibly be helpful to an understanding of normal and diseased conditions.

The blood is the most important fluid of the body, and its office is to convey nutritive material to all parts of the system and to bring away waste matter. When examined under the microscope the blood is seen to consist of a thin, colorless fluid in which float millions of small solid bodies known as corpuscles. The liquid is called plasma and the corpuscles are of two kinds, the work of each differing somewhat. The red corpuscles are known as the oxygen carriers, while the white ones, on account of the work they do, have sometimes been spoken of as the "scavengers" of the body. The blood when removed from the body and exposed to the atmosphere has a tendency to clot, and it is this property which prevents severe hemorrhage following even slight wounds.

Offices of the blood

The great organ of circulation

The organs of circulation are the heart and blood-vessels. We can form some idea of what the strength of an organ must be which can pump out huge streams of blood night and day without cessation throughout a lifetime. And so it is that the heart is fashioned of strong, thick walls of muscular tissue, the contractions of which force its contents through the tubes which are meant to convey the blood to all the tissues of the body. It is enveloped in a membrane which secretes a lubricating fluid that prevents its movements from meeting with any friction. It also has a very delicate lining and the congestion of either of these membranes gives rise to disease.

Details of its work

The heart is partitioned into four cavities with a complicated and very beautiful arrangement of valves. The blood brought to it by one set of blood-vessels, known as arteries, is carried away by others called the veins. The larger arteries, which receive and pass along the blood that the heart contains, are necessarily of firmer tissue and more elastic than are the veins which merely convey the stream of blood back to the heart again. These blood-vessels are constantly branching and diminishing in size as they divide. Their walls also become much thinner as they approach the capillaries or network of extremely delicate blood-vessels which unite them and in which the exchange of waste and nutritive material takes place.

Its pumping and our pulse-beat

This pumping of the heart can be felt over its apex, which lies a little to the left of the centre of the chest, and also along the course of the large arteries as they approach the surface of the body. Pulse is the periodic distention of the blood-vessels due to this contraction of the heart. The blood is forced from the heart into the arteries, and because of the elastic character of the arterial walls is carried on throughout the

entire arterial system. The condition of the heart is indicated by the character of the pulse-beat, which may be felt whenever a large artery comes near the surface of the body. The usual place for counting the pulse, because it is most convenient, is at the wrist, though it may be felt also at the temporal artery and at the neck and ankle.

HOW TO TAKE PULSE

It is sometimes difficult for one not accustomed to taking the pulse to do so readily, but if counted at the wrist the artery is easily found by carrying the first two or three fingers lightly down the outer edge of the thumb until they rest on the artery just at its base, where, with very slight pressure, the pulsation may be felt and the rate counted for a half-minute. The fingers should be used instead of the thumb in feeling the pulse, because of a pulsation in the thumb itself, which interferes with the correct count.

To find the pulse

The normal pulse-beat for an adult varies between sixty and seventy in a man and sixty-five to eighty in a woman. A child's pulse varies between ninety and one hundred. The pulse-beat even in health changes somewhat with age, sex, climate, position, exercise, and other conditions. It is apt to be more rapid in women than in men, slower in sleep than when awake, quicker just after taking food and more rapid standing than sitting or lying down. There may be considerable variation within the limits of health.

The normal pulse-beat

The character as well as the rate of the pulse change under abnormal conditions. It may be full or small according to the volume of blood coursing through the vessel. When it can be stopped easily on pressure it is said to be compressible. It may be

Character of the pulse

irregular if the length or force of the beats differ from one another, or intermittent if a beat is omitted from time to time. An intermittent pulse may exist even in health, but an irregular pulse is usually regarded as more serious. When the perfect action of the valves of the heart is interfered with, the pulse at once shows irregularity.

In sickness

In sickness the pulse indicates how the system is enduring the attack of disease. In most cases the pulse is quickened by disease and the more frequent the number of beats the weaker generally is the condition of the heart.

Effect of medication

The effect upon the pulse of any medication should be carefully watched. Stimulants of course increase the strength and frequency of the heart's action, while drugs which are given to reduce fever have a depressing effect upon the contractions of the heart, and render the pulse slower and weaker.

We should not, however, consider the pulse by itself in disease.

TEMPERATURE

Normal heat of the body

The regulation of the body's heat is interfered with in disease, and the ratio maintained between pulse, temperature, and respiration is always significant. The evenly balanced production and escape of the heat of the body keeps its temperature normally at about 98.4° F., in spite of variations in the external conditions of heat and cold. The normal standard we may say lies between 97½° and 99½°, according to the time of day when the temperature is taken, and the variation of even a degree from this should be regarded as abnormal. The temperature of an adult is said to reach its highest point between 5 and 8 P. M., and is lowest from 2 to 6 A. M. The

range of temperature within which life can be sustained is about twenty degrees—we may say between 95° and 108° F. The danger of either a very high or very low temperature is chiefly in the length of time the condition lasts. Very high temperature is sometimes found in cases of hysteria without danger to life, but that is because the temperature soon drops to normal. Range of the temperature

Most disorders are accompanied with rise of temperature, though this is by no means essential to a condition of disease.

THE USE OF THE CLINICAL THERMOMETER

Every household should possess a clinical thermometer. This is a frail little instrument, the glass

A Clinical Thermometer

of which usually magnifies so that the rise of the mercury can be easily traced. The mercury should be shaken down below 95° before it is used. The time required for it to register will usually be indicated on the thermometer or explained where it is bought. These instruments are self-registering, *i.e.*, the mercury remains stationary after the thermometer is withdrawn until it is forcibly shaken down. Use of the clinical thermometer

The temperature can be taken either in the mouth, axilla, rectum, or groin. If taken by mouth the thermometer should be placed under the patient's tongue, being careful that the teeth do not close suddenly upon it and that the lips are kept firmly held together. When the temperature is taken by axilla the armpit should first be wiped dry, the therome- Ways of taking the body's temperature

ter laid in place, and the arm held closely to the side, with the elbow flexed. It is better that the attendant should hold the arm in place if the patient is weak, so that there need be no effort on his part. The thermometer should be left in place eight or ten minutes.

The most accurate temperature

The rectal temperature is the most accurate, and should invariably be taken in the case of children and in serious illness where great exactness is demanded or if for any reason the temperature by mouth is questioned. A little vaseline on the bulb of the thermometer makes it easy to insert, and it should be carried in an inch and a half. Often the patient is able to do this for himself. Rectal temperature is always a half-degree higher than that taken by mouth or axilla.

When the patient is delirious

The temperature of a delirious person should never be taken by mouth, for fear of accident, and care should be observed in any case not to give a hot or cold drink just previous to taking the temperature.

Upon the first sign of illness the temperature should always be taken. It may be found only slightly elevated, but if each day shows an increase of temperature, however slight, a physician should be consulted. A rise of temperature beginning each day a little earlier is not a good indication.

How often the temperature should be taken

The temperature of a sick person should be taken at least twice a day, and in some cases it is necessary to take it every hour or two. A morning temperature may be normal when the evening temperature will show a considerable elevation.

The thermometer, after it has been used, should be washed off with soap and water and carefully dried. It must not, however, be held under the hot-

water faucet, as is sometimes done by careless hands. If the thermometer has not been thoroughly dried before being put back into the case, the latter grows musty, so that the thermometer when taken out has an unpleasant odor, which is detected at once if a mouth temperature is taken. It is always well to wipe the thermometer with a damp cloth before giving it to a patient. If it is in constant use it may be kept in a glass of some antiseptic solution. A bit of cotton may be placed in the bottom of the glass for the bulb to rest upon.

Care of the clinical thermometer

RESPIRATION

The processes of circulation and of respiration are closely allied and what affects the pulse is apt also to influence the breathing. The blood which is collected from all parts of the body and sent to the lungs is then purified by being brought in contact with the air. The lungs are sponge-like bodies composed of minute sacs or air-cells having very delicate walls surrounded by a network of capillaries. The capillary membrane is extremely thin and of a remarkable structure which permits the passage of gases, and of nutrient material held in solution, through it to the tissues. Hence the interchange of gases that is possible in the lungs. The oxygen which has been drawn into the lungs is taken up by the red corpuscles, which have a great affinity for it, and the carbonic acid and water in the blood, having an equal affinity for the air, pass into it.

The lungs and their action

The rate of respiration varies as does the pulse, and is also influenced by position, emotion, exertion, and other conditions. The respirations can be counted either by watching the rise and fall of the chest or by placing the hand upon it. They are best

Rates of respiration

counted when the patient is asleep or unaware of being observed, as otherwise there is likely to be an unconscious control. If the hand is left a moment on the wrist as if still taking the pulse the respiration can easily be counted.

Average of respiration

The average number of respirations for a healthy adult is eighteen to the minute, and in a child from twenty to twenty-four. The ear should be trained to detect readily a change of breathing if it should take place, as is frequently the case in the night.

OBSERVATION OF SYMPTOMS

How the home nurse may help the physician

One who is constantly with a sick person has an excellent opportunity of noting his true condition, and can be of very real assistance to the doctor if she has the keenness to observe closely and can report in a simple and direct way all the changes that may have taken place between his visits.

Some patients are inclined to exaggerate their ills, while others make light of them, and it may sometimes be difficult to distinguish between real and imaginary disturbances. The attitude a patient takes or his expression often suggests the nature of his trouble. For instance, a person with pain, tenderness, and distention of the abdomen lies on the back with the knees flexed in order to reduce the tension of the abdominal muscles, while in the case of colic a person frequently prefers to lie flat on the abdomen, as the pressure upon it seems to give some relief. When one lung is congested the patient turns naturally toward the affected side in order to give the well lung freedom of motion. When there is great difficulty in breathing, as in asthma or in heart disease, the patient can not lie down, but must be

The attitude of the patient suggestive

bolstered up in bed day and night. As relief is gained the recumbent position is resumed. Patients who are extremely weak often slip toward the foot of the bed. This is considered a sign of failing strength.

Great restlessness is also often an unfavorable symptom. Sometimes in the course of disease the arm or hand is kept constantly in one position. This is significant of some brain affection, as is also grinding of the teeth or rolling the head from side to side. Any swelling of the face or other parts of the body should be reported at once, whether or not it is attended by pain. Any unusual facial expression should be regarded as noteworthy. If breathing is difficult the distended nostrils may be the first sign of it. Any contortion of the muscles, however slight, should be regarded as significant.

Other symptoms

A chill is always considered a serious symptom, whether in the course of disease or otherwise. If the person is apparently well this may mean the onset of some acute trouble. The patient should be given a hot drink, abundant covering, and hot-water bags. The temperature must be taken and the doctor notified. High fever is sure to follow a genuine chill. If a chill occurs in the course of an inflammatory condition, it is probably due to the formation of pus, which must be given an outlet. In malaria the chills are prolonged and often severe, but are seldom regarded as alarming.

Seriousness of a chill

One should be able to describe the character of a cough, whether it is dry, *i. e.*, without expectoration, or loose; whether short, frequent, choking, incessant, or if it is more troublesome at night or after eating. The sputum or expectorated matter should be examined and often must be saved for the doc-

Character of cough and sputum

tor's inspection, as it has a characteristic appearance in various diseases.

Perspiration

If there is perspiration the amount and character of the moisture should be noted when it first appears, and whether it is warm or cold.

When there is persistent vomiting the vomited matter must also be carefully described or saved in a covered vessel for the doctor to see. It should be observed also whether vomiting follows immediately the taking of nourishment or seems to have no connection with it. The same care is necessary regarding the observation of stools and the necessity of saving anything which appears abnormal. Curds may be seen and are easily recognized if milk is not being digested. Some drugs affect the color of the stools so that they might appear alarming if one were ignorant of this. Iron and bismuth blacken the stools. The presence of blood gives them a dark color and tarry consistency. In cases where the function of the gall-bladder is interfered with the stools are clay-colored.

Abnormalities in vomiting and stools

The condition of the tongue and mouth is significant. Note the color of the tongue and if it is coated, dry, swollen, or bitten. In fever cases it is almost always furred, though this condition is not absolutely a sign of ill-health. When the tongue begins to clear from the edges it is a sign that the intestinal tract is resuming its normal condition and improvement may be looked for daily. The odor of the breath and the condition of the gums and throat also indicate the state of the stomach.

The significant tongue and mouth

The color and texture of the skin is another thing that is significant in disease. The skin may be yellow, as in jaundice, showing that the liver is disordered; waxy, as in Bright's disease of the kidneys; anæmic

What stories the skin may tell

or pallid, showing a lack of red corpuscles in the blood; or mottled, or covered with an eruption. Any eruption in the course of disease or any unusual rash appearing in apparent health should be reported to the physician. The place of its first appearance should be noted, as also the character of the eruption and the patient's general condition. A rash may be due to the development of some contagious or infectious disease, to the effect of some poison in the system, or may result simply from a disordered state of the digestion, but the doctor should always be the one to decide upon the matter.

Consideration as to the urine

The condition of the kidneys is detected by the examination of the urine, which in health will appear of a pale amber color, with characteristic odor, and should be voided to the amount of about fifty or sixty ounces in the twenty-four hours. Some variation is expected in health, due to the season and the amount of liquids taken into the system. In winter the urine shows a larger amount and is paler than in summer, when there is more loss of water through perspiration, and therefore a more concentrated and highly colored fluid. Under diseased conditions the urine should be carefully measured each time it is voided, in a measuring glass kept for the purpose and used for nothing else. Any sediment, opacity, unnatural color, or odor should be noted. The doctor may wish at any time a specimen of the urine for examination, and unless otherwise stated the first urine voided in the morning should be saved in a perfectly clean and dry bottle. Under some nervous conditions, as when one has a severe headache, the urine is voided very frequently and is paler than normal urine. The increased amount is also a characteristic of hysteria. Retention of

When the doctor wishes a specimen

urine means the complete inability to void it, and we have already spoken of that as a condition which must receive attention from the doctor or skilled nurse.

Suppression of urine

The suppression of urine, however, is a much more serious complication, and implies, not as in retention, that the muscles around the neck of the bladder refuse to act, but the inability of the kidneys themselves to perform their function, the bladder being found empty upon catheterization. Unless these organs can be forced to act, and will respond to treatment, the issue must be fatal, as the system soon becomes thoroughly poisoned through absorption of the waste matter which should be thrown off by means of the kidneys.

Incontinence of urine

Incontinence of urine or lack of power in the bladder to retain its contents is common as old age advances and the muscles are inclined to relax. The same condition exists sometimes in disease and implies extreme weakness. Incontinence may sometimes accompany retention of urine, the bladder being so full that some of the contents dribble away. None of these conditions should be kept from the knowledge of the physician. Painful and frequent urination may indicate an irritated and inflamed state of the bladder, and treatment is always necessary in order to hasten relief.

Indication from the eye

The eye is sometimes the first thing to indicate a general disorder of the system. It may be unduly prominent, as in a disease of the thyroid gland known as goitre, or the pupils may be abnormally or unevenly contracted or dilated. Sometimes the eyelids droop, as in certain nervous disorders, or there may be squinting, which accompanies brain trouble. Puffiness about the eyes and face suggest heart or kidney difficulty. The color of the eyeball may be abnormal or the eye

take on an unnatural brightness or peculiar lack of expression, all of which is significant in disease.

Hearing, too, is sometimes temporarily impaired by disease, as in the deafness accompanying typhoid fever, but often this sense becomes more acute than in health. An increased keenness of hearing may precede delirium. Any discharge from the ear should always be noted as to its character and amount. State of the hearing

The mental state is subject to frequent changes in disease. If there is delirium, notice its character, whether it be mild, muttering, or inclined to be violent. A delirious patient should never be left alone for an instant, no matter how mild the nature of the delirium, for at any moment an idea may seize his brain and be instantly acted upon, which might bring fatal consequences. Many such accidents have resulted from a delirium thought to be mild and therefore not needing special watchfulness. Any manifestation of a nervous character, such as incoherency of speech, dulness of intellect, difficulty of swallowing, involuntary twitching or actual convulsions, are grave symptoms. Observe the mental state before, during, and after a convulsion, whether the attack is sudden, how long it lasts, and whether the spasms are general or confined to one part of the body. The nervous mental state

Before and after a convulsion

Sleeplessness may be regarded as a serious condition, according to the length of time it lasts. Watchfulness is necessary in order to make an accurate report as to the amount of sleep a patient actually obtains in the twenty-four hours, since it is never safe to trust to a sick person's account of himself and the short naps which he has been able to get if summed up may amount to several hours of sleep. It is never wise to oppose any statement in regard to the lack of sleep, as it can do no good and only irritates a nervous Sleeplessness

person. He may be soothed and his mind diverted from the troublesome subject in the various ways that suggest themselves to a thoughtful person.

The careful observation of symptoms added to good reasoning as to their meaning will often throw much light on the disease in question and make the nursing of a case more than mere drudgery if one has any taste along scientific lines.

The careful observation of symptoms

A little judicious questioning of the doctor, if he is inclined to give explanation, will interest him and add much to the intelligent understanding of the work to be done. Close observation of symptoms, however, is of small account if there is no attempt to report conditions to the doctor in an accurate and orderly fashion.

The memory ought never to be relied upon, but notes of some kind should be kept in the sick-room and important points recorded from time to time. A neatly written statement simplifies the account for the doctor and will be much appreciated by him, whether he takes the trouble to show it or not. A sheet of ruled paper with columns marked off in which to tabulate the time, pulse, temperature, respiration, nourishment, sleep, urine, and stools, with a margin where remarks can be added, will be found a convenient form of keeping the record. A small blank book in which the doctor's orders can be written is also a valuable acquisition.

The value of a written statement

V

INFLAMMATION, EXTERNAL APPLICATION, MEDICINES

Inflammation—Treatment—Dry Heat—Hot-Water Bags—Moist Heat—How to Make a Poultice—Fomentations—Cold Applications—Ice Coils—Counter-Irritants—Massage—The Giving of Medicine—Hypodermic Injections—Care of Medicines

INFLAMMATION

A LARGE number of diseases, both medical and surgical, are of an inflammatory nature at some time during their course; all diseases the names of which terminate in "itis" are understood to be inflammatory. Inflammation implies changes in the tissues, which are brought about by certain irritants. These irritants, whatever they may be, cause a larger amount of blood than is usual to be sent to some part of the body. This condition is known as congestion. It means that the tissues can not take up the excess of nutritive material fast enough, that the capillaries become clogged, and that there is an oozing of some of the constituents of the blood into the surrounding tissues. The congestion may slowly disappear in a few days, but if not soon relieved, inflammation must follow. This state is characterized by pain, swelling, tenderness, heat and redness. It may subside by gradual return to a healthy condition, or it may go on to suppuration, which is the formation of pus or matter.

How congestion is caused

The resulting inflammation

If for any reason inflammation takes place, the white corpuscles of the blood, which we have called the scavengers, hasten to the spot, make their way through

the walls of the blood-vessels and begin their work of absorbing the irritant. If they are successful, we say that resolution has taken place and the inflammatory condition disappears; but if not, the symptoms of redness, swelling, pain, etc., increase in severity and pus is formed. If the inflammation attacks mucous surfaces, there will be a natural outlet for the pus, as these always lead to the external membrane of which they are merely a turning in, and with drainage thus established the inflammation will probably subside. If, however, a serous membrane, as those are called which line the cavities of the body or any solid part, is affected, the pus has no means of escape. Such an accumulation of pus is known as an abscess, and unless an opening is made to afford free drainage for the imprisoned matter it remains as a menace to life.

When pus is formed on mucous surfaces

If on serous membrane

Sometimes an abscess is left to burst spontaneously, and if the body is in good general condition, it will absorb the poison and throw it out of the system. But there is always great danger of blood poisoning, and even if the person escapes such consequences, and there seems to be a speedy recovery, the possibility remains that the poisonous matter has not been entirely evacuated and that what is left will be sufficient to set up further irritation and cause a repetition of the same conditions.

Abscess and blood-poisoning

For this reason it is plain that an abscess which has not had free drainage, even when its immediate contents have disposed of themselves, needs to be cleared out and thoroughly purified before health can be assured. If an abscess in either the pelvic or abdominal cavity is neglected, the consequences are very liable to be fatal. When there is severe pain with a throbbing, full sensation and increase of temperature attending an

Seriousness of an abscess

inflammatory condition, we may be quite sure that pus is forming. In severe cases, chills also occur and are always to be regarded as a serious symptom.

TREATMENT FOR INFLAMMATION

The treatment for inflammation is always to seek if possible to remove the cause and to allay the irritation that has resulted. Various measures may be adopted in order to accomplish this. Both cold applications and hot are used in the early stages, some doctors preferring the former and some the latter method.

Removing the cause

DRY HEAT

Dry heat is used to increase the temperature of the body, whether general or local, to allay inflammation or to encourage suppuration, and to induce free perspiration when it is desired to relieve the work of the kidneys. Dry heat is less enervating to the tissues than moist and there is less danger of taking cold after its use.

What dry heat is used for

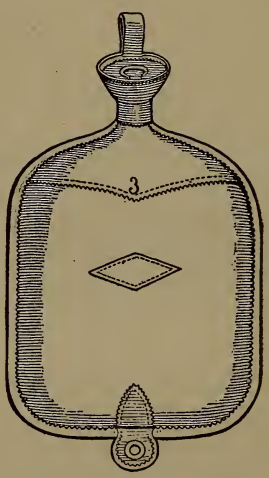
When dry heat is to be employed to induce perspiration, the patient may be placed on a chair with his feet in hot water, the clothing removed and blankets fastened from his neck down around the chair reaching to the floor. A lighted alcohol lamp is placed in a basin underneath the chair, and the patient is kept well wrapped up. After sitting thus for a half-hour or an hour, free perspiration may be expected to follow, and the patient should then be put to bed between warm blankets and sponged off with alcohol. Any arrangement for a hot air bath to be given in bed will scarcely be practicable outside the hospital.

Method of inducing perspiration

HOT-WATER BAGS AND BOTTLES

How to make a hot-water bottle ready

Hot-water bags for ordinary use should never be filled more than half full, as they are unwieldy if entirely full. If the bag is held by the handle when filling, rather than by the top, there will not be danger of scalding the hand as the water bubbles up from the bag. As much air as possible should be expelled from the bag before screwing on the top. It is well to form



Hot-Water Bag

the habit of turning a bag upside down after filling, in order to be sure that the top is screwed on firmly and that there are no leaks. Hot-water bottles are useful many times where bags are not available. They should always be well protected with flannel and should not be filled more than two-thirds full, for fear of their cracking; for this reason also the corked end should always be turned away from the patient. Bricks

Bottles and bricks

may be used and retain their heat a long time, but they are clumsy.

Flannels for application to any part of the body may be kept hot while carrying to the patient, by placing them in a heated paper or towel. After being put in place they should be covered with other warm flannel or cotton of several thicknesses. In application of hot flannels

Bags made of flannel and filled lightly with salt or sand can be heated very hot and will remain so for a considerable time. These are useful for earache or neuralgia of the face. Better for such use is a Japanese hot box or stove, which can be found in almost any place where Japanese goods are sold. It is a little metal box slightly curved on one side and having a sliding cover to admit a fuse which when lighted will retain its heat for hours. These can be bought in various sizes, ranging in price from ten cents upward. Hot sand and salt in bags

A Japanese hot-box

MOIST HEAT

Moist heat relaxes the tissues more than the dry. By causing the superficial blood-vessels to dilate, it draws the blood to the surface, relieves the congestion of the more deep-seated vessels, and so eases the pain. It is very effectual in hastening suppuration. Effect of moist heat

For localized pain, hot compresses (fomentations) or poultices are useful. The latter are better if the pain is deep-seated. They can be made of any non-irritating substance which retains heat well. When applied for relief of the deep-seated parts or to hasten suppuration, the poultice ought to be large enough to cover a considerable surface, but if placed directly over a wound it should be only slightly larger than the opening. After making the poultice it should be taken to the sick-room between two hot plates. It may then Applying a poultice

be placed in the palm of the hand and carefully slipped off on to the inflamed area. By so doing there will be no danger of the poultice being applied too hot. The skin of a child, an unconscious person or a paralytic is abnormally tender and may be blistered by an application that would produce no such effect upon a healthy adult. After the poultice has been applied, it should be covered with flannel and oiled silk, rubber tissue or enamel cloth to help retain the heat longer.

When a poultice should be removed

A poultice of ordinary size will keep warm several hours, but a small thin one will need to be changed oftener. It must never be allowed to become hard and dry, nor should poulticing be long continued, as it may defeat the purpose for which it was applied, by water-soaking the tissues. If no directions are given as to the length of time a poultice is to be continued when one has been ordered by the doctor, he should be asked in regard to it.

HOW TO MAKE A POULTICE

To make a linseed poultice

Linseed meal is perhaps the most common substance used for the making of poultices. To make a linseed poultice stir the meal slowly into a saucepan of boiling water and let it boil two or three minutes, stirring all the time. It should be thick enough when taken off the fire to be beaten well with a spoon, in order to remove all lumps, and introduce enough air to make it light. This is a very important part of the process, as otherwise the poultice will not have the proper consistency. When finished, it should be light and smooth and just thick enough to be cut with a knife. Sometimes a linseed poultice is made with an antiseptic solution instead of water, and is applied over a discharging wound.

A bread poultice is made by pouring boiling water over slices of bread, from which the crusts have been cut. When thoroughly soaked, the water is drained off, the softened bread is beaten well and spread. These retain their heat only a short time. To make a bread poultice

Dough which has just been mixed is sometimes used as a poultice. It is not necessary that it should be raised at all, as the heat of the body will do that. Dough poultice

Starch makes a soothing poultice and is sometimes prescribed in diseases of the skin. It is made by mixing the starch with a little cold water and adding boiling water to make a thick paste. Starch poultice

A hop poultice is made by filling a thin bag loosely with hops and wringing it out in hot water. Bran may also be treated in the same way. Hop poultice

A mustard poultice is made by adding to a linseed or flaxseed poultice one part of mustard to six of the meal. A good substitute for a mustard poultice is said to be a clean flat sponge which has been dipped into mustard paste. If this is covered with a thin piece of cloth and applied, it can be removed by moistening the sponge with warm water. Mustard poultice

A spice poultice is made by mixing a teaspoon each of mustard, ginger, black pepper, cinnamon, cloves, and allspice together, and adding hot water little by little until the mass is of the consistency of putty. This may be left in place all night without danger of blistering and is a very soothing poultice, because of the essential oils contained in the various spices. Spice poultice

FOMENTATIONS

Fomentations or hot stupes are applications of moist heat by means of flannel or flat sponges wrung out in pure or medicated hot water. This means of applying

Fermentations or stupes

heat is pleasanter and simpler than the use of poultices, but it is necessary that the cloths be changed as often as every ten or fifteen minutes if the treatment is to be effectual. Unless constant attention is given to their application, they have no value. They must never be left to get cold.

Wringing the stupe

Two pieces of coarse flannel are better than one. These are dipped in scalding water, wrung out as dry as possible and quickly applied. A cloth which is cool enough to be wrung out with the hands can do very little good. A stupe-wringer, such as is used in every hospital, is a very convenient article to have in the

A Stupe Wringer

household and is perfectly simple to make. It consists of a stout piece of crash or ticking eighteen by fifteen inches, with a stick or small rod run through a hem at either end. In place of this a strong towel may be used, though it is less convenient, and the hands are apt to get burned if there are no sticks to use in twisting.

Convenience in manipulation

It is a good plan, when stupes are being used, to have two basins, one containing the hot water and another in which to lay the wet stupe-wringer. Two stupe cloths are necessary, so that one need not be removed until the other is ready to put on. The stupe is picked out of the hot water and laid in the centre of the stupe-wringer or towel and the ends twisted tightly.

After the stupe is in place it should be covered with a dry flannel or thick layer of cotton batting and oiled muslin be placed on top of that. The first few stupes that are used can not be borne as hot as they can be later. Care must be taken not to allow the patient's nightdress to become damp, and it is well to place a piece of rubber cloth or folded newspaper over the mattress to prevent any dampness, though if the cloths are wrung dry, as they should be, there will be no possibility of their dripping. Necessary precautions

After stupes are discontinued, a dry flannel should be kept over the part as protection for a while.

If turpentine stupes are ordered and no special directions are given for their application, one part of turpentine may be mixed with one of oil or vaseline, warmed and rubbed over the surface to be treated, and plain hot-water stupes applied. This method prevents irritation to the skin from the use of the turpentine. Turpentine stupes

When small compresses are used for the eye or any part of the face, they can be wrung out in a lemon squeezer.

A breast compress should be made with a small hole in the centre to admit the nipple, which should never be covered. The breast compress

COLD APPLICATIONS

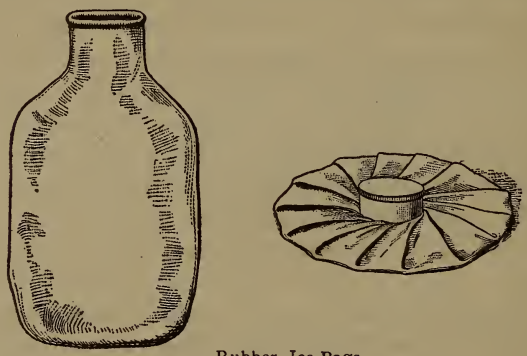
In the earlier stages of inflammation, either cold or hot compresses may be prescribed, according to the preference of the physician, as both are useful in reducing inflammation, though heat must be used with caution, on account of its tendency to induce suppuration. Heat and cold have an opposite effect upon the blood-vessels. The one dilates the superficial vessels, as we have already said, and thus relieves the congestion of the deeper parts, while the other contracts them and Effect of cold on the blood vessels

sends an excess of blood to the deeper vessels, which in their turn react and force the blood again to the surface, thus establishing a better circulation throughout the tissues.

Cold compresses are usually changed hourly or once in two or three hours, according to the amount of inflammation.

Ice bags to fit different parts of the body

The ice-bag now in general use furnishes a very effectual way of applying cold. Besides the ordinary round bags with metal screw top, they can be bought of various shapes to fit the different parts of the body.



Rubber Ice-Pags

There are the helmet-shaped ones for the head, which can be tied in place, and the long, narrow ones, which are useful for the neck and spine. One of the most satisfactory bags, because of its slight cost and convenience in handling, is made of rubber tissue and has no cover. The top is firmly tied with a piece of tape, so that the water from the melted ice does not escape. These come in various sizes and are lighter and less clumsy than other bags.

If there are no better facilities for cracking ice it can be placed in a stout cloth and pounded. In filling

the bag, one should be careful not to drop in sharp pieces heavily, which might pierce a hole in it. The bag should not be more than half filled with ice and the air must be excluded, as in filling a hot-water bag, before the cover is put on. A small piece of gauze or a handkerchief should always be placed between the ice bag and the skin, as otherwise there might be danger of "frost-bite." If the surface of the skin shows any spot that is deep red or purplish at any time during the continued use of an ice bag, it is an indication that the ice is irritating the skin, and it should be taken off. A bag for the head can be wrapped in a thin cloth and pinned to the pillow, so that the weight may be somewhat lifted from the patient's head.

Preparing the ice

Guard against frost bite

ICE-COILS

Ice-coils are also used extensively for inflammatory conditions. They consist of rubber or lead tubing, made into a coil with a yard or two of the tubing left at each end, so that a siphon can be made. A large pan of ice water must be arranged to stand above the patient's head, with one end of the tubing placed in it and fastened to the side of the pan with adhesive plaster, so that it can not slip, but loosely so that there will be no obstruction to the flow of the water. The coil is then put in place, and the other end of the tube allowed to rest in a pail or foot-tub, which is placed near the bed to receive the water. A piece of tape tied round the upper tube serves to retard the stream of water, which should be regulated until it drops very slowly from the end of the tube. There may be some difficulty in starting the flow of the water, but by pinching the tube to give suction it can be done. It is better not to tie the regulating tape

Arrangement of an ice-coil

until the stream has been induced to flow freely. If there is no ice-coil available, one can be made by sewing rubber tubing in the form of a coil upon a piece of cloth.

COUNTER-IRRITANTS

Effect of counter-irritants

Counter-irritants are remedial agents applied to produce dilatation of the superficial blood-vessels and contraction of those in some adjacent or deep-seated part of the body, probably through reflex action of the nerve endings.

Fomentations and poultices

Fomentations and poultices are regarded as mild counter-irritants. Counter-irritants are often applied to places remote from the seat of the pain as when a mustard foot-tub is used to relieve a congested state of the head or abdomen. Mustard is one of the most common substances used to produce counter-irritation.

Mustard paste

Mustard paste, which is more rapid in its action and more irritating than a mustard poultice, is made by mixing flour with the mustard in different proportions. The ordinary formula is one part of mustard to six of flour. This is rubbed into a paste with a little cold water and spread between two pieces of cloth. It should not be kept on longer than twenty minutes, and as some skins are more sensitive than others, it should be watched closely and removed before that if necessary. With unconscious patients the application must be closely watched.

The after oiling and covering the skin

After the plaster has been taken off, the surface of the skin should be oiled and covered with a soft piece of muslin. Tepid water should always be used to mix the mustard, as hot water or vinegar robs it of its full strength. If the plaster is to be used on a child, one-third glycerine should be added to the water used for mixing or the proportion of mustard should be reduced by one-half.

Mustard leaves are small sheets of paper covered with a mustard preparation put up in a tin box and obtainable at any large drug store. If these are used they have only to be dipped in tepid water and applied. A thin piece of gauze or muslin placed between the mustard leaves and the skin renders its effect more gradual.

A cayenne pepper plaster can be made by mixing a tablespoon of cayenne with flour and water to form a thin paste. Cayenne pepper plaster

Iodine is a counter-irritant in very general use. The external skin or mucous membrane is painted with it, using a camel's-hair brush or cotton swab for its application. More than two coatings will be apt to blister the surface. If the skin becomes too much irritated, sponging with alcohol will relieve the smarting. Iodine

For lumbago or sciatica the use of a hot flatiron, which is passed over the surface protected with two or three thicknesses of flannel, often gives great relief, particularly if warm turpentine and oil in equal parts has first been rubbed over the affected part. A hot flatiron

Sometimes it is thought necessary to stimulate rapidly, as in condition of shock, and aqua ammonia is ordered as a counter-irritant. A piece of gauze or cotton wet in the solution is applied and covered close with oiled silk. This is left on five or ten minutes. Chloroform is also used in the same way. Aqua ammonia

Croton oil is such a strong irritant as to produce an eruption. It is often diluted with an equal amount of olive oil and a very little of it is rubbed into the surface with a piece of flannel at intervals of four or five hours till the eruption appears. Croton oil

The practice of cupping, though somewhat out of date, is still used for the relief of pain or labored

breathing, but it should not be attempted by unskilled hands. To prepare for dry cupping it will be necessary to have a spirit lamp, alcohol, a glass or metal rod or stiff wire, absorbent cotton, and five or six wine or medicine glasses, unless the regular cupping set is available.

The practice of cupping

The inside of the cups are heated by the aid of these appliances in such a way that when the cups are rapidly applied to the surface to be treated and held down firmly for an instant, a partial vacuum is formed in cooling, the skin is sucked up to fill it, and the blood is consequently drawn to the surface. In removing the cups, which adhere closely, the flesh near the rim of each cup is pressed down to admit the air, and the cup can then be lifted easily.

The method

The process of wet cupping, which is always done by the physician, is much the same, except that the skin is first scarified before the cups are applied.

Leeches are very seldom used in this country, as wet cupping answers the same purpose.

MASSAGE

It is quite impossible to attempt any exposition of scientific massage without practical demonstration. There are, however, several variations of simple rubbing suggested by the massage movements which are perfectly possible to untrained hands and prove their usefulness by the relief they give.

Simple rubbing and variations

Tired backs are soothed by a gentle pounding motion with the lightly clinched hands, alternating one with the other over the soft parts, always avoiding the bones of the spine. This may be followed by a soft patting with the palms of the hands and light rapid strokes extending from the neck to the base of the spine and repeated for several times. The circular motion with

Soothing tired backs

the palm, keeping the fingers together and the hand steady so that it stirs the deeper tissues under it instead of moving lightly over the surface, is often very restful. The inclination of one entirely unfamiliar with massage, is to rub up and down the back without taking the hand off, as if using a flatiron, whereas passing the hand over the surface in this same circular motion will generally be more effective.

Regular massage given by a skilled operator is very useful in many nervous disorders and in joint affections. After a general massage the temperature is usually found to have increased about a degree, and there should be entire rest for an hour afterward in order to get the full benefit of the treatment. After-effects of the massage

Sometimes the massage, instead of having a sedative effect upon the nerves, seems to have quite the opposite, but in general the effect is a soothing one and for this reason it is often very helpful in cases of insomnia.

The head massage is simple and sometimes gives considerable relief in cases of severe headache. It also serves as a most useful remedy for dandruff and falling out of the hair, because it stimulates the scalp and causes new growth to appear. In the latter case it must be used faithfully once, or better still twice, a day for weeks before there is any evidence of improvement. A little vaseline rubbed into the roots of the hair at the same time tends to increase its growth. Head massage and its results

When massage is to be given it is necessary to take a position behind one's patient, and placing the hands on opposite sides of the head, compress it gently and give semi-rotary motion to the scalp, which will move freely under the hand. The hands may be moved from time to time so as to include each portion of the head till the whole has been treated. One hand may Method of head massage

be placed on the forehead and the other at the base of the head and pressure with the same circular motion applied. Beginning with the back of the head and keeping one hand firmly on the forehead stroke downward with the other in a V shape, gently pinching the flesh in the nape of the neck. In stroking the forehead, place the thumbs between the eyebrows and stroke firmly over the temples to the ears, both thumbs working together so as to act upon the nerves around the orbits of the eyes. Friction and kneading of the neck are of the greatest benefit.

Facial massage

For facial massage, make upward and outward circular movements with the tips of the fingers and do not reverse.

THE GIVING OF MEDICINES

How medicines are given

Medicines may be introduced into the system in various ways, the most common, of course, being through absorption in the alimentary canal. The most rapid absorption is gained when medicines are injected into the tissues under the skin. Medicine may also gain entrance through the rectum, through the skin, and through the lungs by means of inhalation. Medicines taken by mouth are absorbed in the stomach and, to some extent, in the intestines. They are given in the form of solutions, powders, pills, capsules, or tablets. Solutions should always be well shaken and the dose poured into a small glass and diluted according to direction.

To take unpleasant doses

If no directions are given, dilute as little as possible. A large amount of water added to a disagreeable dose often makes it harder to take and more nauseating. Its action also is naturally retarded by too great dilution. A bit of ice held in the mouth before taking a bad dose dulls the nerve of taste, rendering the taste

less unpleasant. If the nose is held while the dose is being taken and it is placed far back in the throat and the mouth is held open a moment afterward, the dose will not be found very disagreeable. Many offensive doses are now given in capsules and taken like pills. They may often be thrown into the throat and carried down with a quick swallow of water.

Concealing in jelly or paper

Sometimes, especially in the case of children, the pill may be concealed in a spoonful of jelly or custard or it may be crushed and given as a powder. Bitter powders may be inclosed in rice paper wafers which come in boxes prepared for such use. A moistened wafer is first laid on a teaspoon, the powder placed in its centre and another wafer folded over it. The spoon is now filled with water and the whole placed on the tongue and taken with a drink of water. If pills have become hardened with age, they may pass through the body undissolved and so are worthless.

To take castor oil

Castor oil if not given in capsule form may be sandwiched between two layers of sherry, strong coffee or orange-juice. The sherry is first placed in the medicine glass, the rim and sides of which have been moistened with it, the oil is then carefully dropped into the centre without allowing it to touch the sides of the glass, more sherry is added and the dose is prepared. This can be taken in one swallow, and if carefully made ready, there will be no flavor of the oil left in the mouth after taking it.

HYPODERMIC INJECTIONS

Quickness of absorption of the dose

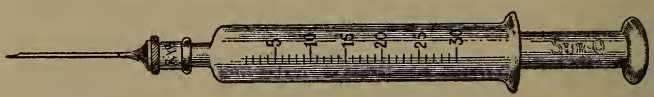
A drug which requires fifteen or twenty minutes to act if given by mouth will usually be absorbed in five minutes if given by hypodermic injection. Morphine is commonly given in this way on account of its bad effect upon the stomach. Brandy, whiskey,

or ether are also given by hypodermic injection when rapid stimulation is necessary.

Surgical cleanliness necessary

It sometimes happens that in the course of a protracted disease a member of the family must be depended upon to give hypodermic injections, and it should never be done carelessly. The principles of surgical cleanliness must be observed each time if abscess formation is to be avoided. Both solution and syringe must be as nearly sterile as it is possible to make them, and the skin thoroughly cleansed with pure alcohol before the needle is inserted. The needle is sometimes sterilized by being passed through an alcoholic flame just before inserting, but this method dulls the needle and makes its insertion more

Sterilizing the needle of hypodermic syringe



Hypodermic Syringe of Glass and Asbestos

painful. The best method is to boil the needle for a minute. This can be done in a tablespoon of water over an alcohol or gas flame. It is not necessary to touch the needle itself in screwing it into the barrel of the syringe if one is careful in doing it.

Sterilizing the barrel

The barrel of the syringe can be sterilized by drawing through it several times pure alcohol followed by boiled water.

A comparatively new hypodermic syringe which can be boiled entire is now on the market. It is made wholly of glass with asbestos packing.

If the needle is in frequent use it may be kept in a strong solution of carbolic acid and carefully washed off with boiled water before using.

When the skin has been cleansed, either on the outer fleshy part of the arm or leg, and the syringe

is ready for use, the air should be expelled from it by pointing the needle upward and gently pressing the piston till a drop of the solution appears at the point. A small fold of skin is then pinched up between the thumb and finger of the left hand, and the needle quickly inserted for at least half an inch, in a slanting direction, and then withdrawn very slightly in order that the fluid may flow more easily. The fluid should be injected slowly, the needle then quickly drawn out and the thumb placed over the spot for a moment to prevent the escape of any of the medicine. A hypodermic injection must never be given over a bony prominence or in the region of the large blood-vessels, as serious results have been known to follow the introduction of a solution into a vein.

How to give the hypodermic injection

CARE OF MEDICINES

Medicine bottles need to be distinctly labeled and those containing poison especially marked to indicate the fact. A bow of ribbon may be tied round the neck of a bottle to distinguish it if no means of labeling is at hand. All medicines intended only for external use should be kept by themselves on a shelf separate from the others and never within the reach of children. The medicine closet should always be kept locked and should be in a dry, cool place.

Label every medicine bottle

When medicine is being poured from the bottle, the label should be kept on the upper side, so that it may not become defaced. A medicine should never be poured from the bottle till the label has first been looked at. Such a precaution prevents the possibility of a mistake being made, and the habit of glancing always at the label is very easily formed. One is never sure that the bottles may not have been dis-

Precaution in pouring out medicines

arranged. No medicine should be poured out in the dark: always have full, bright light.

Never use old medicines

It is a great mistake to keep medicines on hand, as many of them spoil easily, and either become worthless or are so concentrated from long standing that they are no longer safe to use. There ought to be a frequent overhauling of the medicine closet, and all prescriptions the use of which has been discontinued should be thrown away. All bottles should have corks and be kept closely covered.

Never prescribe for another.

It is a temptation for one who has observed a good many cases to suggest remedies which she knows to have been useful to others. This habit, however, is never a safe one to indulge in, and the more actual knowledge one gains upon the subject of the action of drugs and their varied effects on different constitutions, the less willing is one to yield to the temptation of prescribing.

Promptness and regularity in giving medicines

It is important that medicines be given regularly and promptly. If there are no special orders given, a half-hour may be allowed between medicine and food. Most drugs act more powerfully on an empty stomach than on a full one, though medicines which are apt to produce nausea, as cod-liver oil, are given after eating. Both spoon and glass should be washed each time after using and a separate glass kept for strong-smelling medicines.

Medicines to an unconscious patient

In giving medicine to an unconscious patient, if the lips are moistened first and rubbed lightly with the spoon, he can often be made to swallow. In the case of a baby the spoon should be held a moment between the teeth and the child will be obliged to swallow.

The use of patent medicines is deplorable. Their apparent power is generally due either to the action

of some powerful narcotic or to a very large percentage of alcohol, and in either case the temporary relief which they give only conceals the real condition or progress of disease and the person is left far worse off than before taking them.

Don't use patent medicines

VI

CARE OF OPERATIVE CASES

Preparation for Operation—Emergency Preparation—Preparation of Patient—Full Preparation for Operation—The Anæsthetic—Assisting the Surgeon—After-care of Patient—The Problem of Food—Cases of Minor Surgery—Convalescence

PREPARATION FOR OPERATION

THE need of a surgical operation to be performed in the home is a possibility in any family, and it is quite natural that the responsibility of preparation should bewilder one not accustomed to such an undertaking.

An operation in the home

The mention of the word operation at once suggests the amazing knowledge the surgical world has gained in regard to the treatment of wounds and the precautions necessary even in dealing with minor surgery.

Two words in common use among doctors and nurses may need explanation. They are asepsis and antisepsis. The former indicates a condition of surgical cleanliness or, in other words, a thing which is said to be aseptic has been rendered not only free from ordinary dirt, but free, so far as it is possible to make it, through various means, from any trace of poison-bearing germs. The latter term—antisepsis—refers to the means used to destroy microbes found either in a wound or upon the hands of the operator or on articles which might come in contact with the wound.

Asepsis and antisepsis

There is a notable distinction between ordinary cleanliness and surgical cleanliness, which must be

borne in mind by all who assist in preparing for an operation, and one's effort must be always toward aseptic conditions so far as it is possible throughout the preparation and after-care of surgical cases.

EMERGENCY PREPARATION

What to do before the surgeon arrives

It often happens that the need of operation is so imperative as to demand the immediate work of the surgeon, and in such a case it may be valuable to know what is absolutely essential in the way of the preparation which has to be hastily made. There is usually the lapse of a couple of hours, if not more, before the surgeon arrives with instruments and dressings, and in that time much can be accomplished. There will be need of plenty of boiled water, both hot and cold, and large kettles should be placed on the stove at once and the water allowed to boil twenty minutes. The water should cool in the vessel in which it has been boiled, and it must be closely covered and remain so until it is needed, when it can either be poured into the proper receptacles or taken out with a utensil which has also been boiled and rendered sterile.

Boiled water

The room chosen for the operation should yield the best possible light, and it is far better not to remove hangings from the windows, for fear of filling the air with dust particles. They can be covered if there is time with sheets, and the carpet, particularly where the table is to stand, may be covered with heavy manila paper or old sheets tacked down firmly.

Keep down the dust with sheets

The kitchen table usually furnishes the best substitute for an operating table, and it should be covered first with several thicknesses of blankets, then with a rubber sheet and a cotton one, all securely pinned underneath, so that they will not be in the way. A

Preparation of the kitchen table

flat pillow should be placed where the head is to rest, and if nothing better offers this can be fashioned out of a small blanket slipped into a pillow-case.

Small tables, stool, foot-tub, and bowl

The only other furniture in the room will be two small tables for the solutions, instruments, and dressings, a commode or table for the surgeon's use in scrubbing up unless there is a bathroom adjoining, and a stool for him if he wishes it. A piano-stool may be made use of, and if it is upholstered should be covered with a towel neatly pinned into place. A large pail or foot-tub is necessary to receive the soiled pieces of gauze or cotton used during the operation, and a bowl or pail large enough to hold a solution for rinsing the hands from time to time should be placed on a chair or stool within reach of the surgeon.

Position of the operating table

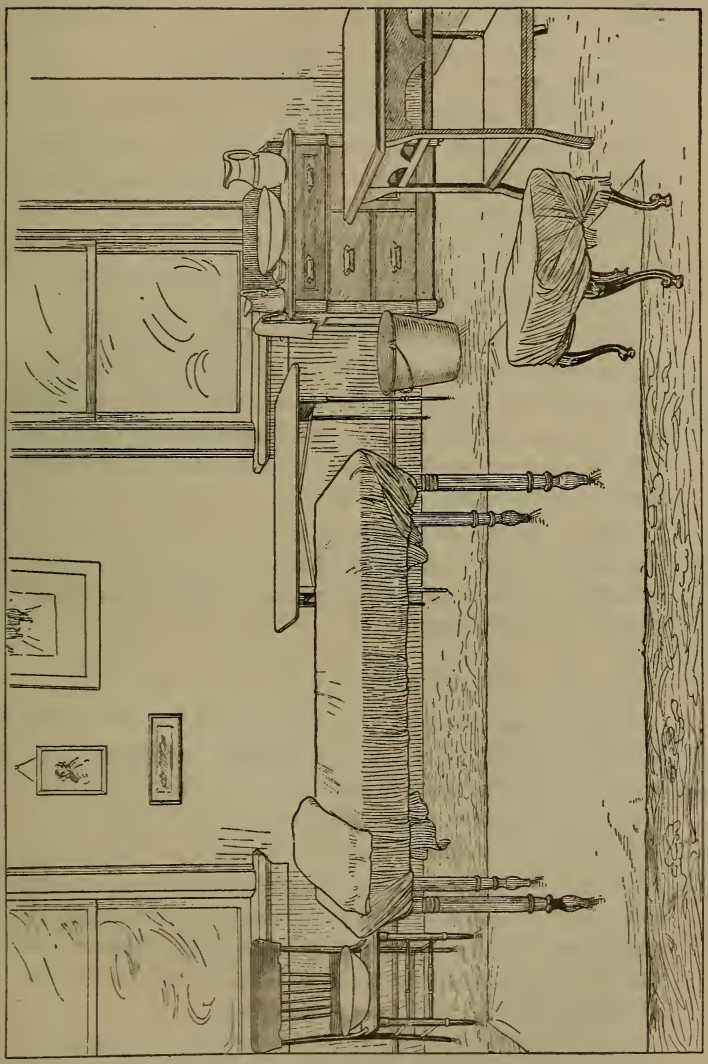
The operating table should be placed near the window, and all the light possible must be admitted. Bon ami or sapolio smeared over the panes makes them opaque and yet does not exclude the light as a curtain would do.

For the arrangement of the various articles in the room the accompanying sketch may be suggestive.

Sterilizing basins for the solutions

If it is possible to get two new enamel basins to hold the solutions it is the better plan, as they can so easily be sterilized. After a thorough scrubbing with sapolio and plenty of hot water, they should be rinsed and dried, a spoonful of alcohol placed in each, being particular to wet the sides of the basins with it, and a lighted match applied. This must be done carefully and in a suitable place, so that there will be no danger from the flames. When the dishes are cool they can be lifted into place, always remembering that the fingers must not touch the inside, which has been made sterile. China pitchers and bowls will probably have to serve as receptacles for the supply of water

Treatment of china pitchers



Room Hastily Prepared for Operation

Sterilizing towels

and since they can not be treated in this way they must be carefully scrubbed and rinsed with some antiseptic solution followed by boiled water.

The surgeon will doubtless bring his own supply of sterilized towels and dressings, which he will take charge of himself, but it is always safer to provide unsterilized towels, which can be wrung out in an antiseptic solution and used if necessary. Two dozen of these should be furnished, but it is not essential that they be fine-face towels. Clean sanitary napkins or dish-towels answer the purpose quite as well.

Other necessities in the operation

Plenty of alcohol, bichloride tablets, carbolic acid, and brandy should be on hand, and a clean brush for the surgeon's nails. Safety-pins and bandages will be needed. An abdominal bandage can be made of three yards of white cheesecloth doubled and folded the required width.

Temperature of the room

The room should be kept at a temperature of 70° F. unless an abdominal operation is to be performed, in which case it will be necessary to have the temperature remain at 80° F.

THE PREPARATION OF THE PATIENT

Bodily and spiritual treatment of the patient

The preparation of the patient will be very little beyond putting on a fresh nightdress and stockings, which are better white than black. The hair, if not already so arranged, should be plaited in two braids. All food and water must be withheld. Everything possible should be done to inspire the patient with a quiet and hopeful attitude of mind, and no trace of excitement or nervous tremor should be observed in the sick-room. On no account should the patient be a witness of any of the preparations.

The anæsthetic will be given before the patient is moved into the operating-room, and it is not neces-

sary that there should ever be any knowledge of the appearance of that room. The patient should void urine the last thing before the anæsthetic is administered. If there are false teeth they must be removed, as accidents have been known to occur from their being left in while a patient was unconscious. Before being moved into the operating-room the patient should be covered with a light blanket carefully arranged to avoid exposure.

Before giving the anæsthetic

FULL PREPARATION FOR OPERATION

All of this preparation can be done in the short time allotted if it is undertaken quietly and systematically. If, however, an operation is to take place at some future date, a more careful preparation of the room and patient can be given. In such a case the room should be thoroughly cleaned and aired, the hangings and carpet removed, the walls brushed down, and the floor scrubbed and washed with a bichloride solution. The further preparation would remain about the same as above except that it would be possible to sterilize towels. Packages of these should be done up in two covers of muslin and sterilized according to the directions for sterilization given in Chapter III of Part II. They should not be sterilized earlier than the day before the operation.

More extended preparations

In sterilizing towels

The preparation of the patient, unless special conditions exist, consist of a thorough evacuation of the bowels by means of a cathartic if the doctor approves, followed by enemata till the water comes clear, and a cleansing bath the night before the operation. After the enemata nothing should be given in the way of food except beef tea or malted milk, and all nourishment must be withheld for at least three hours before the operation.

Preparation of the patient

THE ANÆSTHETIC

To make an ether cone

It is customary for the surgeon to provide the anæsthetic. If ether is to be administered and there is no inhaler used, an ether cone can readily be made by folding two or three thicknesses of newspaper together to make a pad about sixteen inches long by nine inches wide and covering this entirely with a piece of loosely woven toweling. This pad can then be twisted into the shape of a cone and pinned with a small opening left at the top. A bit of absorbent cotton can be put inside to receive the ether.

Guard against inflammable character of ether

If the operation is at night and ether is used, it is well to bear in mind the inflammable character of the fumes. Ether fumes are heavier than air, and the lights should be kept above the region of the can or inhaler.

When one of the family assists

When chloroform is used as an anæsthetic it is usual to apply vaseline over the lips and nose to prevent irritation from the vapor. During the time that the patient is getting under the influence of the anæsthetic it may be necessary that some one of the family be in the room to give some assistance if the patient is inclined to struggle, and considerable anxiety may be removed if one realizes something of the natural effect to be expected from an anæsthetic. The quickened breathing and deeply flushed face need not cause any alarm, as it does not indicate distress.

ASSISTING THE SURGEON

During the operation it will seldom be necessary for one of the family to be present, as in almost all cases the surgeon brings his own assistants. If, however, conditions require it, the duties will doubtless be very simple and will consist of nothing more than

the explicit following of the doctor's orders. A cool head, close attention to directions, and strict care not to touch dressings or instruments are all the requirements that are necessary for such a trying experience. Explicit following of doctor's orders

If, as is altogether probable, there will have to be moments or even hours of intense anxiety outside a closed door, the alternative is a difficult one. It is well to provide one's self with some work which demands concentration, because it is always possible to keep the mind better controlled if the hands are occupied. Control anxieties by work

The first thing, however, to be attended to will be the preparation of the patient's bed. The only variation from an ordinary sick-bed that will be necessary is the placing of a blanket in the bed and several hot-water bags. There should be at least four bags provided if the case is an abdominal one, and extreme care must be taken not to have them too hot. Frightful burning accidents from contact with hot-water bags have occurred in the case of unconscious patients, and it must never be forgotten that the lowered vitality of an ether patient produces an abnormally sensitive condition. The method of holding the bag to the cheek a moment in order to test its heat before putting it into the bed is always a safe one. One bag should be filled only half full and may be laid over the heart to stimulate its action. Heat should never be applied directly over or in the region of the operation, as there is danger of its producing hemorrhage from the sudden expansion of the blood-vessels. Special needs of patient's bed, and precautions against heat

The pillow should be a low one, preferably of hair, and a towel should be laid over the pillow-case. Two basins and gauze or towels for wiping the Pillow and basins

mouth are to be placed on a table near the bed, for vomiting is almost sure to follow the anæsthetic.

AFTER-CARE OF THE PATIENT

The coming-to of the patient

After the patient is returned to the sick-room he must not be left a moment until consciousness is entirely regained. Ether affects persons very differently. With some the unconsciousness and relaxation are profound and the awakening from it is like that from a deep sleep. With others the mind seems more disturbed and there is constant groaning and often excited talking as the effect of the anæsthetic wears off. It will be found, however, that there is no remembrance later of distress of mind or body, and if this can be borne in mind the strain on the one attending will be much less great.

Nausea and food

If there is continued nausea or vomiting it may be relieved by giving bits of cracked ice to hold in the mouth or a little black coffee may serve to settle the stomach. Sometimes the fumes of acetic acid (vinegar) relieve the feeling of nausea or a cold compress over the throat may do the same. After an abdominal operation nothing should be given without the doctor's knowledge, and he will wish to leave explicit orders as to the times and quantity of the feedings, which must be very cautiously regulated. The patient will probably express alarm lest the effort of vomiting break open the wound, but there is almost no chance of such a possibility, as the surgeon always bears in mind this additional strain and strengthens the wound accordingly.

Turning the patient

Surgeons differ in regard to the time when abdominal cases may be turned, some regarding it essential that the patient should remain on the back for twenty-four or even thirty-six hours, while others

allow their patients after six hours to be turned a little on the side with a pillow at the back.

It is impossible to give full instructions in regard to the care of abdominal cases, since so much depends upon the condition of the patient, and it is very necessary that one who thoroughly understands the nursing of such cases should have the responsibility for the first week at least.

Need of a specialist the first week

The knee pillow is useful to relieve the strain upon the abdominal wall, and a small pillow that can be easily turned is much more comfortable for the head than a large and thick feather one.

Knee pillow

The gas pains, which are often very severe, may begin to be felt during the first twelve hours. The soft rubber rectal tube inserted and moved about in the rectum may bring away some of the gas and give immediate relief, though it is hardly to be expected so soon after the operation that the gas will be sufficiently low in the bowel to be reached by the tube. Gas pains indicate the activity of the bowels, and are looked for as a sign that all is going well. At the end of twenty-four hours, if the gas is not passing off freely, the doctor will doubtless order a hot saline enema to be administered high, using the soft rubber tube. He may remain himself to give the first enema, but if not some assistance will be needed in giving it, as it is never wise to attempt it alone while the patient is so weak and needs to be lifted on to the bed-pan. As the bowels become warm with the water the gas should begin to pass off.

Relieving gas pains

It must be remembered that the bowels have been thoroughly emptied before the operation, so that it will not be necessary for the patient to retain the water as for an ordinary enema. Sometimes the patient is unable on account of weakness to expel

In difficult cases

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the water, and then it should be returned by inserting the long rectal tube. If after several bags of the saline enema there has been no gas expelled, the patient should rest a while and then the treatment should be resumed until successful, as it is very important that the gas should not be allowed to collect in the bowels. If relief does not come with the use of the saline enema, the doctor will probably advise some medication to be added.

With the free escape of gases the patient will find great relief, and the abdomen, if it has been at all distended, will appear normal again.

THE PROBLEM OF FOOD

If there are no complications attending an abdominal case, and the wound heals without suppuration, the patient will be feeling very comfortable at the end of a week and will begin probably to take solid food.

First food after a few days

A few days after the operation, if the doctor allows it, orangeade can be given occasionally and will be most refreshing if served ice-cold with a dash of lemon-juice added. If egg albumen is mixed with it, it can be given as nourishment, but the egg should not be beaten, simply stirred enough not to be stringy.

Milk

The problem of variety in liquid diet is apt to be troublesome, but there is really quite a list to choose from if one's attention is directed to it. Milk, of course, remains the chief resource if the patient can take it. It may be given cold or warm, as preferred, and if very rich it can be mixed with seltzer water.

Gruels well cooked

The old-fashioned gruels made of oatmeal, Indian-meal, flour, rice, and cracker have different degrees of usefulness if properly prepared. The first two are considered rather too heating for fever cases, and the

last are good in cases of diarrhœa. Indian-meal gruel is frequently under-cooked, and served in this way is not easily digested. It should be cooked four hours, and is then delicate and of sweet flavor, quite different from the raw unpalatable stuff that is sometimes carried to the sick-room.

The various foods on the market, such as Imperial Granum, Malted Milk, Cereal Milk, and Eskay's Food, are useful. The latter is one of the newer foods and is especially delicate and pleasant. With all of these foods the directions are given on the box, though in almost all cases the time given for cooking is too short and individual taste may suggest some variation, such as pouring the hot malted milk upon a tablespoon of thick cream, which makes it a most delicious drink. Other foods

Koumiss is enjoyed by some patients, and is digested by very delicate stomachs when other foods are rejected. Fruit egg-nogs, expressed beef-juice, and broths help to make variety, and albumen water, while not especially palatable, can be taken without distaste by most persons.

The following receipts for invalid cookery may be helpful:

FRUIT EGG-NOG

One egg, one orange, half a lemon, two to four teaspoons of sugar. Beat the yolk of the egg and add the orange and lemon juices. Add sugar to the white of the egg, and beat until stiff. Combine and mix well. Pour upon cracked ice and serve at once. Thin slices of banana or a few strawberries may be added if desired.

EXPRESSED BEEF-JUICE

Take one pound of thick round steak, broil slightly

and place on a hot platter. Cut in small pieces and press out the juice by means of a meat-press, lemon-squeezer, or potato-ricer. Add a very little salt, and serve either ice-cold or warmed by placing the cup in hot water a few moments before serving. If heated over the fire it will curdle.

CORN-MEAL GRUEL

One pint of boiling water, one scant tablespoon of Indian-corn meal. Mix the meal with a little cold water and stir into the boiling water. Boil for four hours. Strain and season with salt. Sugar and cream may be added if wished.

MEAT-BALLS

Scrape raw beef and mold into tiny balls three-quarters of an inch in diameter, with a bit of chopped parsley added. Place in a hot pan over the fire, with a little butter and seasoning; and keep the pan moving until the balls are evenly seared. Serve on bits of delicately browned toast.

PRUNES WITH WINE

Wash quickly in hot water half a pound of dried prunes. Soak overnight. Cover with claret and simmer until soft. Add sugar to taste and cook ten minutes more. Serve cold.

CASES OF MINOR SURGERY

The cases of minor surgery, by which we mean those that are not naturally attended with serious results, frequently do not require the services of a trained nurse, though the nursing demands intelligent watchfulness and attention to detail in the general care.

Rectal cases are often treated at home with en-

tirely satisfactory results. It must be expected that there will be great suffering unless the doctor approves of the use of morphine, which is usually given at first to such cases if treated in the hospital, because a very large number of nerve-endings have to be exposed by the operation. The removal of hemorrhoids, while not regarded as a difficult operation, is yet one that demands the utmost skill. Very alarming nervous disorders sometimes follow if too large an area of the mucous membrane is interfered with, and too great a number of nerves are exposed. This all goes to show that even minor cases require the work of a skilled operator, and a choice should not be made without careful consideration and advice. If this precaution is observed there need be little fear of the ultimate result not being successful.

Precaution in the removal of hemorrhoids

The diet in such cases will have to be limited to foods which do not tend to increase the accumulation in the intestines. Only malted milk, broths, and albumen water should be given, unless the doctor allows more variety. Whenever the doctor thinks best he will order purgatives or an enema, to secure a free passage of the bowels. If an enema is ordered, oil should be given the night before.

Special care in diet

In cases where the operation has been for repair of laceration of the perineum, which is sometimes ruptured during child-birth, the stitches should be douched with warm water after each time of voiding urine, as absolute cleanliness is essential if a good result is expected.

In laceration of the perineum

Liquid diet is required till the bowels have moved, which will probably be the third day. Light diet should follow for another day, and then if the bowels have been thoroughly cleared and the temperature is normal, full diet may be given.

In curettage

In cases of curettage or scraping of the lining of the uterus, the patient is usually kept on liquid diet for forty-eight hours, or until the temperature becomes normal. Douches may be ordered, and a sterilized douche point and boiled water will be necessary unless some antiseptic is to be used.

To overcome inability to void urine

Sometimes in operative cases there is complete inability to void urine in the recumbent position. This difficulty is due to a nervous condition, which may not manifest itself in any other way, but unless some device can overcome the trouble, the water must be drawn. This should on no account be attempted by unskilled hands, as unless extreme care is observed there is great danger of setting up a distressing inflammation of the lining membrane of the bladder. Sometimes, if very hot water is placed in the bedpan, the steam from it relaxes the muscles and the patient can urinate. A hot compress over the genitals or the sound of dripping water may also effect the same result. All these methods should be faithfully tried before resorting to catheterization.

If there has been a rectal operation it is usually easier for the patient to urinate lying on the abdomen rather than in the usual position.

Care after an operation for cataract

In cases of operation for cataract the room should be kept darkened and the patient should not be allowed to turn the head on either side or to lift himself forward in the bed, for fear of jarring the eyeball. At night the hands must be tied loosely to the bed, giving plenty of freedom but preventing them from reaching the head while asleep. The first night the patient should have some one sit with him, as the nervousness is apt to be very great. Liquid or very soft diet must be given for a few days, because the effort of mastication might do injury to the wound.

Another operation which is becoming more common each year is the removal of the tonsils. These are small bodies situated in the back of the throat, and their function in health is a very important one. They stand as sentinels to arrest the progress of any foreign particles which may find their way into the lungs. These particles, whether dust or micro-organisms, are absorbed and disposed of by these glandular bodies. In that case the system is entirely unaffected by such germs, which might otherwise cause disease. When the tonsils become diseased their absorptive function may be increased, but their power of disposing of the absorbed matter is impaired, and there is besides this the mechanical obstruction to the throat and nasal passages, due to their enlargement. Hence we find a patient with enlarged tonsils very susceptible to colds and often suffering with other disorders of digestion or catarrhal affections, and generally with marked nervous symptoms.

On removal of the tonsils

With these facts in mind, there need be no hesitation in following a doctor's advice as to their removal. The operation is an unpleasant but not a painful one, and the after-care required is slight, beyond frequent rinsing of the mouth and throat with a weak solution of peroxide of hydrogen or whatever wash is ordered. There will probably be vomiting of blood and mucus, which has been swallowed during the operation, and, though very disagreeable, it need never seem alarming.

The care which follows

CONVALESCENCE

The period of convalescence, as people in general realize, is apt in some respects to be the most trying. Whatever excitement the acute stage of the sickness has furnished has tended to make one forget the

Difficulties of convalescence

weariness, and now while fatigue is uppermost even more responsibility is given over to the nurse as the doctor lessens the number of his visits. Convalescence may be rapid or very gradual, but in either case great watchfulness is needed because the patient's own feelings are no trustworthy guide to the amount his strength is equal to, and no patient is able to realize this, particularly if it is the first illness.

When speedy recovery may be looked for

In surgical cases, unless there has been a heavy drain upon the system and great depletion of strength previous to the operation, a speedy recovery may be looked for. Less caution is usually necessary in the matter of diet than must be observed in medical cases, but rich and heavy food should never be brought to the sick-room. The patient's whims and fancies can often be indulged, but it should not surprise, much less offend, the nurse if after taking great pains to prepare some special delicacy, it is not touched or is even set aside with querulous impatience.

Irascibility of the convalescent

Some persons seem to have less control over their feelings than others, and it is true that irritability of disposition sometimes accompanies weakness of body in persons naturally sweet-tempered. If patience is exerted for a few days till a little more strength is gained, the patient will generally realize that he is unreasonable and be able to gain better self-control. Any one of us as a patient is liable to feel this irascibility, and it is well to recognize that while much is excused when bodily weakness has impaired the will, the effort to strengthen it must not be overlooked or indulgence in ill-temper allowed.

Ways of serving his food

In preparing a tray for an invalid it should never be forgotten that small portions daintily served will quicken the appetite when a carelessly prepared meal may be left untouched, though the patient very likely

will not realize why he can not eat. It is far better that too little rather than too much be furnished. A half cup of soup served alone and very hot, a delicately browned chop with a few green peas placed on a hot plate with a hot cover, a piece of roasted potato rolled in a napkin beside the plate, a bit of bread and a small serving of some light dessert, furnishes an ample dinner for full diet. A simple salad may be added if the patient enjoys it. A single flower or a

A Nightingale. The Corners Turned Back are to be Fastened as Sleeves

sweet-scented leaf laid on the tray is always appreciated, but one must not make the attempt at ornamentation elaborate.

Avoid discussing his food

It is most annoying to a patient to be constantly beset with questions as to what he would like to eat. He does not know, and the thing that will give most pleasure is that which has not been discussed before him. The nurse should be on the alert to observe and to remember his tastes, and when the right occasion comes can often give a pleasant surprise by placing quietly before him some favorite or new dish which has not been spoiled for him by being talked about.

When a patient begins to sit up in bed a loose flannel jacket or a nightingale should be slipped on.

The first loose wrap

This latter is a wrap that is easily made and very convenient. Two yards of flannel of ordinary width are required. Cut a straight slit six inches deep in the middle of one side, turn back the points so formed for a collar and those of the corners furthest from it for cuffs; bind or pink the edges, and add buttons and buttonholes for front and cuffs.

The first sitting up

Half an hour is a sufficiently long time for a patient to sit up for the first day. As improvement in the patient's condition is made the time for sitting up can be increased and he can be lifted to an easy chair or sofa for a change. At first he should not be kept up longer than the time necessary to make the bed, when he will probably be very willing to return.

Extreme weakness after illness

The extreme weakness that is felt after having been kept in bed for some weeks, even though the illness may not have been severe, is always surprising to one who realizes it for the first time. On no account should the patient be allowed to get up and dress himself, and some one must always be near to help him with his first steps or he will be very likely to fall. Not more than one person should be in the room, unless other assistance is necessary, as it is best to make the confusion as little as possible.

The room should be warmer than when the patient is in bed. To provide against a draught, first place a blanket in the chair, and when he is seated, fold it up over the feet. A footstool is always desirable. The clothing should be sufficiently warm, but not cumbersome. A man will be more comfortable in a warm bathrobe when the time comes for walking about the room and a woman should not be burdened with a tea-gown having a heavy train, but should wear a loose short wrapper.

Dress for man and woman

A patient should not feel obliged to see all the vis-

itors who call. Even if he wishes it this is unwise and the nurse should protect him against the fatigue which is sure to follow too much company. Some people understand perfectly the limitations of a sick person's strength and a short and cheery call from such is a benefit, but others with equally good intent make no distinctions and wish to stay on for a lengthy visit as if the patient were well. Two visitors coming together always make it harder for the invalid, as there is more strain in talking, and it is better that they come at different times if possible.

Protect the invalid from visitors

Place the visitor's chair in a good position near the bed where there will be little effort for the patient in listening to what is said and be on the watch for the first sign of fatigue, then do not hesitate to suggest that the visit must be ended and the patient left to rest. If this is done with good nature and in a spirit of friendliness, taking for granted that the good of the patient is the first consideration, the visitor need not feel any embarrassment.

Suggest that the caller go at first signs of fatigue

VII

ACCIDENTS AND EMERGENCIES

Shock—Hemorrhage—Bleeding from Nose—Bleeding from Lungs—Fainting—Fractures—Dislocations—Contusions—Sprains—Chilblains—Frostbites—Toothache—Warts—Cuts—Burns and Scalds—Foreign Bodies—Sunstroke and Heat Exhaustion—Artificial Respiration—Insect Bites—Bites of Snakes and Rabid Animals—Poisons

EVERY household may expect a certain amount of anxiety and trouble over slight bodily accidents, especially if there are children in the family, and at any time one ought to be prepared to meet these with intelligence and also so far as it is possible to face the graver emergencies which may come in the same way. It has often been noticed that persons thought to be nervous and unstable in time of alarm show a self-control and power of directing others that is very surprising. It is most unfortunate when at such times the mind is able to think clearly, yet is ignorant of how to act. Some simple directions every one ought to be acquainted with follow.

Simple directions every one ought to be acquainted with

The flock of well-intentioned but helpless individuals who gather about when an accident has occurred, must be kept as far as possible from the patient, so that he may have plenty of breathing space. The assistance of a policeman will probably be necessary in order to keep the crowd away. If the accident has taken place in a house curious neighbors who come ready with suggestions must be kept out and not allowed to throng into the room.

Keep away the curious crowd

In the city an ambulance can be summoned in a few moments, and if a policeman is at hand he will attend to that, if not some reliable person may be sent

In the city

to the nearest police station or to telephone for the conveyance.

If the accident occurs on a country road, the first thing to do, if there is no hemorrhage to be arrested, is to get the patient ready to be moved to the nearest house. If the patient is insensible, he should be turned on one side and the head raised on a level with the rest of the body so that he can breathe more easily. His clothing should also be loosened, especially about the neck and abdomen. If the patient can swallow, water may be given to drink and the face can be bathed or sprinkled with water, but no stimulants should be given unless it is clear that they are needed.

On a country road

SHOCK

If there is shock or collapse as a result of the accident, it will be shown by a cold and clammy condition of the skin and extreme pallor or blueness about the lips and finger-nails. The pulse grows very feeble, if indeed it can be felt at all; the patient will complain of faintness and the breathing will be irregular and sighing. Such a condition demands prompt action if life is to be saved, and here stimulants are called for without delay.

The condition of shock or collapse

Brandy is more useful than wine and should be given in small quantity, watching its effect. If the pulse grows stronger, the breathing deeper, and the body warmer, it may be kept up in teaspoon doses every fifteen minutes till there is complete reaction, when it should be discontinued. If there has been no loss of blood, alcoholic stimulants should be used sparingly and entirely withheld if no sign of improvement follows the first dose. Strong coffee may be used and is always safe, though not so practicable, because of the delay necessary in obtaining it.

Alcoholic stimulants in collapse.

How to send for the doctor

If there is bleeding or local injury of any sort, it must be treated according to the directions to be given later on. A written message stating as clearly as possible the nature of the case should be sent to the nearest doctor, as it is never safe to trust to a verbal message, no matter how reliable the person may be who is to deliver it.

If it seems advisable before the doctor arrives, the patient may be removed to the nearest house. If there has been an injury to the head of any serious account do not allow him to walk, even if he seems quite able. He must be made to lie down and transported as easily as possible. A stretcher can be made of a blind, a door, or any stout board upon which the patient can lie horizontally, and those who carry it should be instructed not to take it on the shoulder, but with the hands, as there will be less jolting if carried that way. It is better also if they do not attempt to keep step.

How to carry the patient

HEMORRHAGE

Bleeding from an artery

Bleeding from an artery may be recognized by the way the blood spurts out in bright red jets. If a vein is injured the blood oozes forth and is duller in color. Bleeding from an artery is always serious, because of the quantity of blood that escapes in a short time, owing to the amount of pressure in the blood-vessels, and it must be arrested at once.

Directions for checking the hemorrhage

The blood coming through the arteries is being carried away from the heart, while that in the veins is returning to it. For this reason it is plain that bleeding from an artery must be checked by means of pressure above the wound, *i. e.,* between it and the heart, whereas that from a vein demands pressure below the wound.

If a limb is bleeding it should be elevated above the

level of the heart, and if pressure with the finger is not sufficient to check the flow of blood a handkerchief may be knotted or a smooth stone tied in it and the knot or stone placed directly over the wound or upon the artery above the wound if the bleeding is arterial. Another handkerchief is used to tie around the limb in order to hold the compress in place, and through the knot of this, which should be rather loosely made, a stick should be carried and twisted until sufficient pressure is applied to stop the hemorrhage. If one end of the stick is tucked under the edge of the handkerchief, it will be kept from untwisting. Such an apparatus is known as a tourniquet bandage, and should not be left on a limb longer than an hour for fear of gangrene resulting from the stoppage of circulation.

If from a limb

A tourniquet bandage

The limb must be examined from time to time, and if it becomes very cold and dark colored the bandage must be loosened.

Care of the limb

The main artery of the arm runs along the inner side of the large muscle in front, keeping further forward as it nears the elbow. It is most easily found and compressed a little above the middle.

Main artery of the arm

The artery on the thigh runs a similar course. A little above the knee it passes to the back of the bone. For injuries at or above the knee, the compress should be applied high up on the inner side of the thigh with the knot and stick on the outer side. When the lower leg is wounded, the compress should be placed at the back of the leg just above the knee.

Main artery of the leg

If a vein is bleeding, a compress applied directly over the wound will be all that is usually required. The tourniquet is not to be used.

When a vein is bleeding

If a bandage can not be readily applied to the part that is bleeding, ice wrapped in a cloth and placed over the wound often answers the same purpose.

Use of ice

If there is bleeding from the palm of the hand the hand should be closed tightly over a wad of cotton and the arm raised and held above the head.

BLEEDING FROM THE NOSE

Bleeding from the nose, unless it results from accident to the head, is generally of slight moment, and is occasioned by the effort on the part of Nature to relieve a congested state of the head. The common practice of holding the head over a basin is the surest possible means of increasing the bleeding.

Remedial measures in bleeding of the nose

The head should be kept erect or thrown back, and a cold compress held to the nostrils. After a few moments the blood will in all probability stop flowing, and the head will feel relieved of pressure. If the bleeding does not stop soon, pressure should be made with the finger on the centre of the upper lip, as this will compress the facial artery. Bits of ice or cloths wrung out in cold water should be laid on the back of the neck, and the arm raised above the head. The lifting of the arm distributes the force of the heart's action and relieves the pressure in the large blood-vessels supplying the head. If bleeding still continues, the nose may be syringed with ice-cold salt solution, vinegar or water. After bleeding has ceased, blowing the nose should be avoided for some time, as it may dislodge some of the clots which have formed there and bring on further bleeding.

When the doctor should be summoned

If after resorting to these measures, bleeding is still uncontrollable, it should be regarded as a hemorrhage, endangering life, and the doctor summoned.

HEMORRHAGE FROM THE LUNGS

Blood which comes from the lungs is usually coughed up and is so mixed with air that it has a

somewhat frothy appearance. Blood coming from the nose or throat is sometimes supposed to come from the lungs.

If hemorrhage is really taking place it is a serious symptom, and the patient's condition will soon indicate the need of wise measures to preserve his strength and check the hemorrhage. The pulse will grow rapid and weak and there may be signs of collapse such as cold hands and feet, blueness about the nostrils and nails, dizziness and ringing in the ears. The patient should be kept absolutely quiet, not even being allowed to move his position himself or lift his hand. Bits of cracked ice should be given frequently and small quantities of cold liquid nourishment. Ice-cold cloths or an ice bag should be placed over the chest, and the head and shoulders slightly elevated. Hot-water bags may be placed at the feet.

Seriousness of hemorrhage

Treatment

If the arrival of a doctor is delayed, straps or bandages can be applied tightly around the ankles and wrists to check the flow of blood passing to the lungs and thus give opportunity for clots to form in the bleeding vessels. This may serve to entirely check the hemorrhage. The bandages should be put on one arm and the opposite leg, left in position not more than five minutes, and the same thing be repeated to the other limbs, one set of bandages being left on till the others are in place.

To check the flow of blood

FAINTING

Fainting, which is sometimes confounded with shock, is occasioned by there being an insufficient amount of blood sent to the head. The patient should be laid on his back with the head slightly lower than the rest of the body, the clothes loosened and plenty of fresh air admitted. Cold water may be sprinkled

Treatment of the person who has fainted

over the face, or the forehead bathed with it. This treatment will usually be enough to restore consciousness. Ammonium salts should never be held close to the nostrils of an unconscious person, as bronchitis has been known to follow the extreme irritation of the respiratory tract caused from its use.

Avoid ammonium salts

FRACTURES

Fractures or broken bones are among the more or less frequent accidents to be considered. It is a common belief that there should be no delay in having a fracture set, but it is far better that a competent doctor or surgeon should be found to do it, even if it take a day or two, than that splints should be applied in a clumsy and ineffective manner, which can only cause deformity in the end.

Have the broken bone mended accurately

The essential thing to be done is to place the injured part in as comfortable a position as possible, taking care not to handle it more than is absolutely necessary, as there is danger of the surrounding tissues being bruised and blood-vessels cut by the jagged ends of the broken bone. Clothing can be ripped along the seams or cut if necessary and slowly removed, beginning with the uninjured side.

Care before the setting

An injured limb should never remain unsupported for an instant. If the hands are slipped underneath, the one below and the other above the fracture, the limb can be gently placed in a natural position and should be slightly elevated. Gentle extension is necessary in order that the split bones may not rub together.

Supporting the injured limb

Temporary splints can be made of pasteboard, shingles, or some stiff substance which may be padded with something soft. A broken leg can be laid on a pillow, which is then bound closely around it. If the

Temporary splints

thigh is broken, the splint must extend from the armpit to the ankle and should be bound to the leg at frequent intervals by means of towels or large pieces of cloth.

If the upper arm is broken it can be bound to the side of the body. If it is the forearm, padded splints should be placed above and below it and a bandage applied after making slight extension by drawing gently on the patient's wrist. The arm when bandaged should be hung in a sling which ought to be wide enough to support it from the elbow to the finger-tips. In a broken arm

For a fractured collar-bone, the patient must be laid flat on his back without a pillow. A pad is placed in the axilla and the arm of the injured side is carried across the chest and bound in place. This position will separate the ends of the bones so that they can not rub together. A fractured collar bone

If the ribs are broken, a broad body bandage is applied tightly around the chest to limit its motion. If the patient raises any blood it is a serious symptom, probably indicating that one of the sharp edges of bone has pierced the lung tissue. A broken rib

If a skull fracture is suspected, the patient should be placed in a dark room and kept perfectly quiet on his back with the head slightly raised and cold cloths or an ice bag applied to it. No stimulants should be given. Any oozing of blood or serum from the ears is significant and should be made known to the doctor. In fracture of the skull

DISLOCATIONS

In dislocation the muscular contraction is so great that its reduction becomes more difficult the longer it is delayed. A dislocated joint is always very painful, but there is little that can be done for the relief of a patient before the arrival of the doctor. Cold appli- A dislocated joint

cations can be made to the injured part, in order to retard the swelling.

A dislocated jaw

A dislocated jaw may be reduced by simple measures, which should be resorted to if no doctor is near. The thumbs should be placed upon the back teeth, the fingers of each hand under the jaw and considerable pressure be brought downward and backward till the jaw slips into place. When this happens, the teeth are brought suddenly together, so that the thumbs will need to be well protected.

CONTUSIONS

Treatment of bruises

Contusions or bruises are best treated with hot applications of arnica or hamamelis diluted half with water. If the skin is abrased, the hamamelis should be used in preference to the arnica. A warm bath often gives relief after a general contusion.

SPRAINS

How to treat sprains

Copious douching with hot water, followed by cold, is excellent treatment for a sprained joint. This should be kept up alternately for fifteen minutes two or three times a day if good results are to follow. The sprained joint must be kept perfectly at rest, and a cold compress kept on in the intervals between the douchings.

CHILBLAINS

Remedies for chilblains

If there is a tendency to chilblains, the feet should be loosely and warmly clad, and after they have been exposed to cold they should be gradually warmed rather than brought at once to the heat. Sometimes painting with iodine relieves the extreme itching. If chilblains are persistent, the condition should be made known to a physician, as ulcers may develop if the soreness is neglected.

FROSTBITES

When a part of the body has become frostbitten, it is essential that the circulation be restored very gradually, by friction with cloths wrung out in ice water or snow. Sudden heating of a frozen part causes destruction of tissue and gangrene.

Treat with ice water

TOOTHACHE

Toothache is often relieved if there is a cavity which can be plainly seen by carrying in a wisp of absorbent cotton wet in pure carbolic. This must be done carefully, in order that the gums immediately surrounding the tooth shall not be burned with the acid. A toothpick smoothed so that the cotton will not catch on it and be drawn out is a good thing to use.

Treatment for toothache from a cavity

It is well to practice first using plain water to moisten the cotton until it can be done skilfully enough to attempt with the acid. The merest fleck of cotton is sufficient to use and is wound lightly on the end of the toothpick and moistened very slightly with the acid.

A good light is necessary in order to see well enough to carry the cotton easily into the cavity. The same treatment may be used, substituting compound tincture of benzoin for the acid, but its effect is not likely to be so lasting as the latter.

WARTS

Warts can be successfully removed by the use of glacial acetic acid introduced twice a day into the roots of the growth. This can be done best by means of a toothpick without cotton. The acid should be confined to the centre of the wart, which will begin in a few days to crumble away. It may take several weeks for

To remove warts

a wart to disappear entirely under this treatment, but it is sure to yield in time. The use of nitric acid, though causing the wart to disappear rapidly, is exceedingly painful, whereas the milder acid has no unpleasant effect.

CUTS

Need of care of cuts

Small cuts must be properly cared for, because of the danger of their becoming points of infection. It is better that a fresh cut should bleed somewhat freely, in order that any foreign substance which may have found entrance shall be washed out of the wound. If the wounded part is placed in warm water and gently squeezed, it will assist the escape of impurities. After the bleeding is checked, a perfectly clean piece of muslin or linen wet in weak carbolic or other antiseptic solution should be laid over the wound and a bandage applied.

No salves or ointments

Nothing in the nature of salves or ointments is needed over a clean wound, and it is better that they should be dispensed with, because they sometimes carry infection unless taken from an absolutely fresh supply. If anything seems to be needed, however, to keep the cloth from sticking to the wound a very little of the carbolized vaseline may be spread on the cloth.

Never use cobwebs

On no account should cobwebs be used to arrest bleeding from a wound. This old-fashioned device has no doubt accomplished its purpose many times and established the clotting of the blood just as lint is able to do, but in using the former we bring to the wound the dirt and dust which we know to be so disastrous. It is because Nature stands ready to correct our mistakes that serious consequences do not more often result from our carelessness. The utmost care should be taken to keep even slight wounds perfectly clean, in order to avoid the possibility of serious infection.

Before dressing a cut, the hands of the one doing the dressing should be thoroughly scrubbed and nothing but the dressings touched until the wound is bandaged. The edges of the wound should be brought neatly into apposition before the wet pad is applied. If the cut is a long one and there is surgeons' plaster at hand, narrow strips of it can be used to hold the edges together. The ends of the cut should always be left uncovered and free for the sake of drainage. In dressing the cut

If for any reason the dressing of a wound has to be cared for at home with an occasional visit from the doctor, he will doubtless give full instructions in regard to it. If, however, he should be careless about directions or they should not be perfectly understood, the following general method will always be safe and useful to adopt. After placing a clean towel on the table, lay upon it the dressings to be used, and, if needed, the little basin in which forceps and scissors have already been boiled. If a solution is to be used, that, too, should be in a bowl on the table, or if an ointment is to be applied, it should be spread ready for use. A silver table knife may be boiled to use for spreading the ointment. After removing the soiled dressings and placing them in a basin or paper which has been provided for the purpose, the hands should be scrubbed vigorously with a nail brush for several minutes and rinsed in a basin of some antiseptic solution. A piece of sterilized gauze may be used for drying them. From this time on, nothing may be handled but the dressings and instruments until the wound is covered. General method of dressing a wound

BURNS AND SCALDS

A scald is an injury caused by moist heat, while a burn is occasioned by dry heat. Burns are usually classified as of three degrees, the first showing mere redness The three degrees of burns

of the skin, the second extending through the true skin, and the third involving the deeper tissues. This classification, however, does not indicate anything in regard to the serious nature of a burn, because the extent as well as the depth of the injury has to be reckoned with. A superficial burn which covers a large surface, thus interfering for the time being with the true function of the skin, may be more alarming in its consequences than a small but deep burn. A burn of the first degree, which involves a third of the surface of the body, is usually fatal, especially in the case of a child. This is largely because of the additional amount of work which is thrown upon the kidneys.

To treat a superficial burn

A superficial burn may be treated with a solution of bicarbonate of soda, which is found in every household for cooking purposes, or dusted with flour, which is cooling, if the skin is not broken. Much pain may be spared if the air is excluded from a burn and dressings should be applied for this reason if for no other.

Puncturing the blisters

When the skin is broken, wet applications should be made. The use of a powder would be irritating by caking upon the raw surface. As soon as the blisters form they should be punctured at their base with a large needle which has been held in the gas jet a moment in order to burn off inpurities and make it sterile. The serum that oozes forth can be gently mopped up with absorbent cotton.

Thiersch's powder

Boracic acid solution, or better still one made of a mixture of boracic acid and salicylic acid and known as Thiersch's powder, is cleaner to use than the oils and ointments which were much in vogue at one time. If a burn is extensive or very deep, a doctor must give advice about its treatment, but for an ordinary small burn the solution made of Thiersch's powder will be found to keep the burn clean and cause it to heal

rapidly. The solution is made by adding half a teaspoon of the powder to a pint of warm water and the dressing should be kept moist. This is best accomplished by covering the dressing with oiled silk or firm rubber tissue and cutting holes here and there, through which to pour the solution.

Absolute cleanliness

In dressing a burn, all the ordinary precautions of absolute cleanliness are to be observed as for the treatment of any wound.

Serious results from burns

If a burn is severe, complications may be looked for. Brain disturbances, bronchitis, and pneumonia are not uncommon sequelæ, and if the alimentary tract has been injured the digestive process may be seriously impaired. The danger of shock is always great after a burn of any large extent, and the patient should be kept quiet and warm and stimulants given to keep up the heart's action.

To prevent deforming contraction of the muscles

Great deformity sometimes results in the case of severe burns from the contraction of the skin in healing. Something can be done toward preventing this by a wise adjustment of splints in order to keep the parts in the best position. When the splints are removed for dressings the joints should be moved freely to guard against stiffness.

Diet

The diet should be light and liberal in order to keep up the patient's strength, which is having a heavy drain upon it while the healing process is going on.

If your clothes catch fire

There would be fewer grave results of accident by fire if more people realized how to act in an emergency. If one's own clothes catch fire, lie down instantly and roll on the floor, remembering to keep the mouth closed in order not to inhale the flames. If a rug is at hand and can be reached that will help to smother the flames. The first impulse is very naturally to run and call for aid, but nothing that one could do would be more dis-

astrous, since the current of air thus set in motion only serves to fan the flames.

If another person is afire, do not hesitate a moment to knock him down and to wrap quickly about him whatever is at hand in the way of a rug, blanket, shawl, or overcoat, being careful to protect the head first.

If another's clothes catch fire

FOREIGN BODIES

Any foreign body in the eye causes great pain and discomfort. If the particle is not imbedded in the eyeball it can often be floated out and into the nasal passage by lifting the lid of the eye outward and downward and holding it a moment. This causes the tear glands to secrete freely and also throws the lower eyelashes against the eyeball in such a way that they act as a brush. If the nose is blown vigorously while the eyelid is being held, the offending particle will usually disappear.

To float away foreign body on the eyeball

If a particle gets caught under the lower lid and can be seen there it may be wiped out with the fold of a soft handkerchief. If it is under the upper eyelid, the latter can be folded back over a small pencil or knitting needle, the patient directing his eyes to the floor while the particle is wiped out.

If a particle is caught in the lid

The eyeball must always be treated very gently and never rubbed hard with the hand. When it is necessary to examine an inflamed eye let the index finger hang over the eyebrow and gently draw up the lid without touching the eye. If a particle is imbedded in the eyeball and can be plainly seen, it may sometimes be removed, provided the patient is not nervous, by means of a small piece of rather stiff letter paper, creased to form a scoop. This can be used to pick out the particle and will answer very well if the latter is

If a particle is imbedded in the eyeball

not too deeply buried. If this is not successful, the services of a physician will be required.

When lime gets in the eye

Sometimes a fragment of lime gets into the eye and burns into the eyeball. The eye should be bathed at once in some mild acid, as vinegar or lemon-juice diluted to about one teaspoon to a cup of water. This will neutralize the effect of the alkali.

Using a medicine dropper

If it is necessary to put drops into another person's eye a medicine dropper is used for the purpose. If the drops are to be warmed before applying them (and the physician should state whether he wishes this done) the medicine dropper after it has been filled may be passed once or twice over the alcohol flame. The end of the dropper will need to be held up while doing this in order that the fluid may not escape as the glass expands.

To take a hard substance from the ear

If some hard substance gets into the ear, there may be gentle syringing with warm water unless it is a pea or bean which obstructs and which would only swell with the water and add to the trouble. If the lobe of the ear is gently pulled out and down, the canal is straightened so that the water has freer passage. A medicine dropper placed on the end of a fountain syringe is the best thing to use for ear-syringing.

When an insect gets in the ear

If an insect has gotten into the ear, turn the patient on the unaffected side and fill the ear with warm oil or glycerine, which will catch the insect and float it to the outside. Another method is to saturate a piece of cotton with a strong solution of salt or vinegar and placing it firmly in the ear, have the patient lie on the affected side. After a short time if the cotton is withdrawn the insect will probably be found upon it.

Avoid bad treatment of the ear

The ear has a most intricate and delicate mechanism and serious injury, even permanent deafness, may result from careless treatment. The practice of thrusting

hairpins and other articles into the ears is a very dangerous one, and nothing should ever be introduced further than it is possible to get the little finger.

A physician should remove abnormal wax

Sometimes the natural secretions of the ear fail in their normal function of keeping the wax moist, so that the latter collects into a hard ball and so obstructs the passage as to cause temporary deafness. This condition is easily recognized by a physician and with the proper instruments the wax can be removed without causing any distress to the patient.

To dislodge a foreign body from the nostril

If a child gets something lodged in the nostril make him take a deep breath, close the mouth and unobstructed nostril and give a strong expiration. The force of the air which has been excluded from the other outlets will usually blow out the object.

When a foreign substance is swallowed.

A foreign substance that has been swallowed, such as a button, coin, etc., usually passes through the intestines and no harm results from it. It should always be watched for in the stools. If a sharp object has been swallowed it is best not to give purgatives, but to restrict the diet to solid foods, so that the object may become imbedded in the food and carried along without causing injury.

SUNSTROKE AND HEAT EXHAUSTION

What increases danger of sunstroke

The danger of sunstroke is less in the country, where the air is pure and where people live with less nervous tension, than in the overcrowded districts of the city, where the reverse is true. People also of intemperate habits are more liable to suffer from the excessive heat.

Sunstroke and treatment

The terms sunstroke and heat exhaustion are not synonymous, the effects being quite different in each case. In cases of sunstroke the patient usually becomes suddenly unconscious and the fever runs ex-

tremely high. The respiration is very labored, and the pulse rapid and weak. Prompt measures must be taken or the issue will be fatal in many cases. A doctor must be summoned at once, and treatment with ice baths will doubtless have to be kept up.

In cases of heat exhaustion the onset is more gradual. The patient feels weak and dizzy. He is not necessarily unconscious, but shows signs of collapse. The temperature will be found subnormal, *i. e.*, below 98° Fahrenheit. The pulse is weak and rapid and the breathing much quickened. The treatment is the same as for shock, and the patient is kept in a darkened room or in a cool, shady place out of doors with the head low. Aromatic spirits of ammonia, one teaspoonful in a little hot water every half-hour for three or four doses, may be given until the doctor comes. Strong coffee may also be used. In convalescence from heat exhaustion great care must be taken that there is no exposure to extreme heat. The direct rays of the sun are not necessary to produce heat exhaustion. It may follow exposure to intense heat of any kind, and persons who have once suffered are liable to another attack.

Heat exhaustion and its treatment

ARTIFICIAL RESPIRATION

In accidents from drowning, strangulation, or suffocation, where the supply of air for any reason has been cut off from the lungs, artificial respiration must be resorted to, as it is often possible to force the lungs to act, and the effort should be kept up till it is evident that it is hopeless, and that conclusion should not be reached short of two hours of faithful work.

When artificial respiration is used

There are several methods of establishing artificial respiration, there being little difference in their value so long as the lungs are made to expand. In

A first duty in establishing artificial respiration

any case the tongue must first be fastened to keep it from falling back upon the windpipe. This can easily be done by holding it down to the chin by means of a rubber band. If the case is one of drowning or of strangulation the patient must be turned over on his face and the throat cleared of any collection of mucus that may be obstructing it.

Sylvester's method

In the method known as Sylvester's the patient is laid on his back with the head and shoulders slightly raised and the clothing loosened. Standing at the patient's head and grasping his arms just above the elbows, bring them slowly out from the body and upward till they meet over the head. They are held there for two seconds and brought slowly back till the elbows come together on the chest with slight pressure. These movements should be repeated steadily and not more rapidly than sixteen times a minute.

INSECT BITES

Small bites and stings

Mosquito or spider bites can be relieved by lotions of ammonia or salt. The sting of a wasp or bee, if left in the flesh, may set up considerable irritation. It can be removed by making firm pressure around it.

BITES OF SNAKES AND RABID ANIMALS

Speedy treatment of a venomous or rabid bite

Prompt action and heroic treatment are demanded when dealing with the bite of a venomous snake or of a mad animal. The bleeding of the wound should be encouraged. If it is on an arm or leg this should be firmly bandaged at once above the point of injury, in order to cut off circulation for the time being. The wound must then be sucked or cupping glasses applied before the poison is taken into the system. Finally it must be deeply burned with a hot iron and poulticed. If more than half an hour has elapsed

since the bite the method of burning out the wound is useless.

Pasteur's treatment by inoculation of virus made from emulsions of dried spinal-cord not only secures immunity but has also proved itself a curative measure. Both in the Pasteur Institute in Paris and in New York this treatment is being carried out daily with marvelous success.

Pasteur's treatment

POISONS

Poisons are known either as irritants, substances which corrode the tissue, or narcotics, those which cause insensibility by directly affecting the brain.

No time should be lost in giving emetics when a poison has found entrance into the body. A tablespoon of salt or of ground mustard stirred into a cup of tepid water rarely fails to produce vomiting, and this dose should be given repeatedly till free vomiting is secured. After this it is always well to give a purgative enema to remove any trace of the poison that may have traveled as far as the bowel.

Treatment when irritant poisons are swallowed

Large draughts of water, milk, white of egg, or flour and water should be given to soothe the injured membrane of the alimentary tract if the poison is of an irritating character.

For all alkaline poisons acids should be given to neutralize their effect, and vice versa for acid poisoning.

The treatment necessary for narcotic poisoning is strong stimulants (black coffee freely administered), cold effusions and mustard foot-bath. Above all, the patient must be kept awake, and will probably have to be walked about the room vigorously. Poisoning may follow the use of tainted meat, mushrooms, fish, milk, or cheap ice cream. Emetics and purgatives

In narcotic poisoning

Have medical advice in case of poisoning

must be used freely, and a physician should be summoned at once in all cases of poisoning.

Definition of antidotes

An antidote is a remedy used to offset the effect of a poison in one of three ways. First, mechanically by emptying the stomach and bowels to prevent absorption; second, chemically, by combining with the poison to form a harmless compound; and third, physiologically by counteracting the effects of the poison on the system.

VIII

INFECTION AND CONTAGION

Micro-Organisms and Disease—Transmission of Disease—The Protozoa—Disinfectants—Methods of Disinfection—Typhoid Fever—Erysipelas—Malarial Fever—Dysentery

MICRO-ORGANISMS AND DISEASE

IN any discussion on the subject of transmissible disease we have to consider the methods by which it is communicated before we can understand the proper precautions necessary in its care. Science has advanced and is advancing so rapidly in its investigations that each year adds to our knowledge and equips us with more effective weapons both in the prevention of disease and in its cure. We are only in the A B C's in our knowledge of the cause of disease, but in so many instances the use of what science has offered us will prevent it, and save life, that we should try to understand some of the scientific phraseology and follow the discoveries of the investigators as far as may be.

Science has changed our view of disease

The terms microbes, micro-organisms, germs, and bacteria are all used to indicate the microscopical living bodies which are now held responsible for many diseases.

Microscopic living bodies

The bacteria are not animal organisms, but are the lowest form of plant life, and though invisible without high magnifying power, are near relatives of the sea-weeds. They are very complex and wonderful in their variety of shape and in the work they do in life, which is by no means exclusively the produc-

tion of disease. This making of disease is confined to a comparatively small class, bacterial work in general being of great service to mankind.

Work of bacteria

The decomposition and hence the disposal of waste animal and vegetable material is largely carried on by bacteria. They make possible the renewal of worn-out soil by what is known as "rotation of crops," and their presence in our bodies often saves us from disease by rendering harmless poisonous matter which would otherwise act as an irritant. In short, life on the earth would be impossible without this form of micro-organism.

Disease producing bacteria

Many of the disease-producing forms have been recognized, and the method of destroying them or rendering their poisons harmless is the subject of investigation, and has led to the modern method of fighting tuberculosis, to the antitoxin treatment of diphtheria, and to other results which we will discuss later.

The protozoa

At the same time that scientists were pursuing their studies of bacterial life in relation to disease, the cause of certain disorders was traced to another source. This was another micro-organism, the protozoon, which is the lowest form of animal life. The protozoa have long been the object of microscopical study, because most of them are much larger than the bacteria and their life processes may be followed with comparative ease. Much of the advanced knowledge of human structure, needs, and functions has been gained through their aid, and the recent discoveries in connection with malaria and yellow fever have brought them into prominence in other than scientific circles. The terms microbe, germ, or micro-organism are applicable to the protozoa as well as to bacteria, and while like bacteria the majority are

The terms microbe, germ

harmless, unlike them there seems to be no record of especial good to their credit.

THE TRANSMISSION OF DISEASE

All infectious diseases are supposed to be transmitted by the agency of one or the other of such living bodies; though their presence has been proved, the specific germ causing the disease has been recognized and actually cultivated outside the body in comparatively few instances. Agents in infectious diseases

The disorder begins with the introduction of the germs into the system, progresses with their development and multiplication, which is almost inconceivably rapid, and terminates with their destruction when Nature is able to accomplish it, or with the death of the patient when they are victorious.

The germs causing scarlet fever, diphtheria, measles, and other diseases ordinarily included under *contagion* are of such a nature that they are communicated by simple contact, while a person may remain with immunity in the presence of patients suffering with malaria, typhoid fever, tuberculosis, and pneumonia unless he is actually inoculated with the poisons producing the disorder. Germs act with different intensities

The bacterial source of typhoid fever, tuberculosis, pneumonia, Asiatic cholera, lockjaw, and other less familiar diseases has been proved, and the modern methods of prevention and cure are based on what is known of the condition under which bacterial life thrives or is destroyed.

The demands which physicians make that their patients shall have sunlight and fresh air, the methods of disinfection and fumigation employed in infectious diseases are rational, because science has found that germ life flourishes best in warm, dark media, that Enemies of germ life

sun and air are its worst enemies, that continued heat, of boiling water in some cases, and of condensed steam in others, destroys it, as do also certain so-called disinfectants.

THE PROTOZOA

The part played by insects in disease

The consideration of the protozoa as an agent in infection has come into prominence through investigations made regarding the part played by insects in the propagation of disease. These investigations, with experimentation, have been carried out mainly in regard to mosquitoes, and the results have established beyond question the fact that the prevalence of malaria in certain districts is referable to the presence of these insects rather than on account of climatic conditions pure and simple, and that the protozoa discovered in the stomachs of mosquitoes found in such districts are of the same variety as those found in the blood of malarial patients.

Mosquitoes carrying malaria and yellow fever

The numerous experiments which have led to these conclusions are given in an article in the "Popular Science Monthly" by Professor A. F. A. King, M. D., entitled "Mosquitoes and Malaria," and in books upon the same subject by the same author. Equally conclusive results have been reached in the experiments with mosquitoes infected with yellow fever, though the specific organism causing the disease has not been found. "Mosquitoes: How They Live—How They Carry Disease—How They Are Classified," by L. O. Howard, Ph.D., and later reports on the subject can be obtained by applying to the Department of Agriculture in Washington.

The immediate effects of these investigations have been systematic effort in some States to exterminate the mosquitoes by the persistent use of kerosene over

certain swampy districts known as their breeding places, and the more general care to exclude them from houses in malarial regions, by careful and thorough screening. Efforts to exterminate the mosquito

The theory of the protozoon origin of other diseases is put forward by scientists, but has not been conclusively proved. Other insects which have been known to carry disease are the common house-fly, the small house-fly, and other similar varieties. These flies tend to swarm over sputa or excrement, if it is left exposed, and their feet are so constructed that they must of necessity retain on them minute particles of any soft substance with which they come in contact. Food attracts them with equal certainty, and we trace here a direct source of infection. Infection from house flies

All this points to the necessity of careful protection of our homes from these pests, and any other insects which may have come into contact with disease. Whenever the poison of a disease lies in the discharges from the body or in the blood, insects may be powerful agents in its transmission, and the use of screens should be insisted upon as a safeguard. Screens as a safeguard

DISINFECTANTS

The following agents for disinfection, together with the general scheme for their use, are recommended by the Board of Health of New York City:

Sunlight, cleanliness, and fresh pure air are powerful preventives of disease, and play an equally important part in their cure, but in dealing with cases of infectious disease the aid of agents known as *disinfectants* must also be called in. Powerful preventives

After such disease, and also during its course, all the articles of small value which have been used in contact with the patient in any way should be de-

Disposition of articles after an infectious disease

stroyed by fire. Dishes, silver and metal objects not injured by water may be made thoroughly sterile by boiling in a closed vessel for half an hour, and in cities large articles, such as bedding, can usually be taken care of by the Health Department.

Carbolic solution

A five per cent solution of carbolic is a very powerful disinfectant to be used on clothing, towels, bedding, etc. It is made by dissolving six ounces of the acid in a gallon of hot water. The pure acid is a very strong corrosive, and even the five per cent solution is too strong for use on the hands.

Care of carbolic

If a person is burned with carbolic, pouring alcohol over the cauterized surface gives instant relief. It is very poisonous when taken by the mouth, should have a poison label plainly upon it, and should be kept out of the reach of children.

Solution of corrosive sublimate

Solution of corrosive sublimate is easily made with tablets, which are dissolved in water. Directions are found on the bottles. It is much less expensive than carbolic acid, but is not as useful. It injures metals, stains clothing, and is not effective in the disinfection of discharges, because it merely incloses the particles which it touches in an albuminous coating; its action on albumen being to cause it to coagulate. In this way the germ is preserved, but not destroyed. It is useful in cleaning woodwork and furniture.

Chlorinated lime solution

Chlorinated lime solution is one of the most effective as well as least expensive disinfecting agents. It is prepared by thoroughly mixing six ounces of fresh chloride of lime with one gallon of water. It should be made only about an hour before using. The danger of using this on bedding, clothing, etc., is that it tends to destroy the fabric. If it is employed it should be thoroughly strained through a cloth and diluted one-half.

Milk of lime is equally valuable. The solution is made by adding a quart of finely slaked dry lime to four or five quarts of water. It should be remembered that air-slaked lime has lost its disinfecting power.

Formaldehyde gas is a very powerful disinfectant, commonly used now in the general fumigation of rooms after contagion. The strongest liquid preparation on the market is the forty per cent solution of this gas in water. The five per cent solution is effective for the disinfection of discharges, and of dishes, instruments, etc., and a one per cent solution may be used on the hands. Formalin is so expensive that it is rarely thought best to use it extensively in the household, but its action is so powerful that it is taking precedence over other disinfectants when expense need not be considered. Formalin in disinfection

FORMULÆ

Formalin, 5 per cent: Strong formalin, 5 parts; water, 35 parts. Or,
Formalin, 5 per cent: 4.75 ounces formalin to one quart of water.
Formalin, 1 per cent: Strong formalin, 1 part; water, 39 parts. Or,
Formalin, 1 per cent: .95 ounces to one quart of water.
Formalin, 1-5000: Strong formalin, 1 part; water, 2,000 parts. Or,
Formalin, 1-5000: 10 drops of strong formalin to one quart of water.

Another preparation used in fumigation is gas from burning sulphur. This is not regarded with as much confidence in recent years as it was before the wonderful vitality of disease germs was understood. The advantages of the method are that the fumes are very diffusible, they do not injure furniture, are easy to use and are not expensive. The difficulty in the use of sulphur is in confining the gas in a room for a long enough time to destroy the germs. Sulphur in disinfection

Three pounds of sulphur for every thousand cubic feet of air space is necessary, the room must be tightly closed, and all cracks where air might enter must be sealed, by pasting strips of paper over them. It is more effective if burned in a moist atmosphere, so the In using sulphur

usual method is to place the dish holding the sulphur on rests in a vessel containing water. It must be remembered that the fumes blacken metal, and that a liberal application of vaseline will prevent this action.

Not in tuberculosis

The bacteria of tuberculosis are able to protect themselves from destruction by sulphurous gas by a change in their structure, therefore some other method of disinfection is necessary after this disease. If formaldehyde gas is available it should always be given preference in fumigation.

METHODS OF DISINFECTION

In disinfecting the hands

The formalin solution one per cent or the carbolic solution diluted with an equal part of water is to be used in cleansing the hands. The dry chloride of lime is also of value. If the liquids are used, the hands should be thoroughly washed in the solution and then with soap and water. Especial care should always be given the nails. About a teaspoon of the dry chloride of lime is placed in the palm of the hand, moistened with water, and rubbed thoroughly all over both hands and about the nails. Any disinfectant is irritating to the skin if used for any length of time.

All discharges must be disinfected

It is not only the feces, but also the discharges from bladder, mouth, and nose, which must be disinfected or burned. Expectoration and discharge from the nose may be received upon cloths or paper and must be burned at once.

Use of lime or carbolic

When vessels are used, a solution of lime or carbolic acid must be kept in them, and after use the contents must be mixed with the disinfectant and allowed to stand for an hour or more. If carbolic is used, the amount should be twice that of the discharge, with milk of lime four or five times as great.

It must be remembered that the intestinal dis-

charges in diseases where these contain the active germ must be broken up, so that the disinfectant will be thoroughly mixed with them. They are not disinfected if the solution is merely poured over them.

Thoroughness essential

In typhoid fever, the discharges from the entire digestive tract and from the bladder are regarded with suspicion, and subjected to the action of the disinfectant. In dysentery and cholera, the stool and vomited matter contain the poison, and in diphtheria, scarlet fever, and measles the discharges from the nose and throat carry the infection.

In typhoid fever, dysentery, and cholera: diphtheria, scarlet fever, and measles

Germs are not scattered while the medium in which they are contained is kept moist.

The food which is left after the patient has been served must never be taken back to mix with the garbage from the household. It should be put in a separate covered receptacle, and either burned or subjected to the action of a disinfectant. Bacteria thrive especially on milk, and therefore milk should never be left uncovered in the sick-room.

Disinfection of food remnants

In any disease, food should be kept outside the sick-room, since it is very liable to become contaminated.

All washable articles must be put to soak in either a carbolic or lime solution, and left for ten or twelve hours. They can then be washed in the usual way. The boiler containing the disinfectant should be kept in a room adjoining the sick chamber, and should not be removed till after disinfection is complete.

Disinfection of clothing

A pint of carbolic solution or of milk of lime solution should be poured into the closet each time after using. Nothing should be thrown into it or into sinks without disinfection. If it could be assured that it would remain moist and would be held intact in the sewer there would be no danger, because the germs could not be disseminated and the action of other bac-

Disinfection of water-closets, sinks, sewer pipes

teria would in time render them harmless. Accidents, however, do occur in sewer pipes, and since a leak can give rise to an epidemic of disease, every precaution must be taken to guard against the deposition in the pipes of living germs where it is possible.

Disinfection of furnishings of room.

During sickness, the cleaning and dusting must be done with cloths wrung out of a 1-1000 bichloride solution. At its termination, if the Health Department has an effective sterilizing plant, all bedding, carpets, curtains, etc., can be removed and made entirely germ-free, and it is always advisable, when it is not compulsory, to have the fumigation carried on by the Department. In country places, this responsibility must be assumed by the family, and if they are conscientious about it, they can accomplish it effectively.

The wisest plan in contagious diseases is to strip a room of woolen curtains, carpet, and unnecessary ornaments, and to bring into it for the patient's use and amusement only such things as can be burned or boiled at the termination of the disease.

Guide to the use of formalin as a disinfectant

Formalin seems to be the most practical disinfectant, and knowledge of certain facts concerning it will make our use of it rather more intelligent. In order to exert its destructive action on micro-organisms it must have, first: free access to them—hence all clothing, curtains, etc., which are left in the room for disinfection must be hung up or spread out so that the entire surface is exposed.

Second: it must be concentrated as far as possible, that is the room must be sealed to hold the vapor, and more formalin, and a longer time is necessary if there is any appreciable escape of gas from an apartment.

Third: the higher the temperature the more effective and more penetrative is the action of the formalin, therefore the room should be heated either by turning

on heat from furnace or boiler, or by building a fire in stove or heater.

Fourth: a moist atmosphere is conducive to more thorough fumigation, *i. e.,* steam should be allowed to escape into the room in order to get the best possible results. A space represented by 1,000 cubic feet is supposed to require from two to three fluid ounces of formalin and five to eight hours' exposure.

Special apparatus

An especial apparatus is used by the Health Department, by which the formaldehyde gas is generated outside the apartment, and introduced through the keyhole till the required amount has passed in, when the pipe is withdrawn and the keyhole sealed.

Household method of fumigation with formalin

Household fumigation must be accomplished without the use of special appliances and can be done as follows: The room should be carefully sealed, the temperature raised as high as possible with safety to it and its contents, and if possible steam should be allowed to escape into it. If the heat of the room is maintained by the use of a stove, a large tea-kettle or boiler of water may be kept boiling. Care must be taken to provide sufficient water for the entire length of time. An alcohol lamp may be placed in the centre of the room, quite away from furniture, on a metal plate, so that there can be no possibility of its tipping over. The forty per cent formalin, three fluid ounces, should be placed in an open vessel and put over the alcohol lamp. It is estimated than two ounces of alcohol will be required to generate the fumes of this amount of formaldehyde. After the lamp is lighted, the person who has charge of the fumigation must quickly leave the room, and seal the door.

Nature of bacteria a factor in fumigation

The nature of the bacteria makes a difference in the amount of disinfectant, and the length of time required, and whenever the physician can oversee the

fumigation, it will be done with a greater assurance of success.

Cleaning after fumigation

After disinfection, a room should be carefully cleaned, the glass, woodwork, and furniture wiped with a cloth wrung out of bichloride solution, and then thoroughly washed with warm soap-suds. Cleanliness is no less an essential because it is no longer our sole reliance. Dirt is the natural habitat of germ life, and the more air, soap and water, and sunshine we let into our homes, the more effectually we guard them from disease.

TYPHOID FEVER

The bacteria causing typhoid fever

Typhoid fever is one of the diseases caused by a micro-organism which has been recognized, cultivated outside the body, and proved to produce the disease when introduced into the system. This organism is found to be one of the bacteria, and its action is confined to the intestine and chiefly to a restricted area, where it causes inflammation and ulceration. It must be taken in through the alimentary canal, to cause the disease, but can not be contracted by contact, hence it is not classed with the contagious diseases.

How the poison is conveyed

It may occur at any time of year, but comes most usually in the autumn. Infection is always due to a previous case of the fever, and the germ is conveyed chiefly through the stools, though all discharges from the nose or mouth, vomited matter and the urine may carry the poison and must be immediately disinfected. Contaminated water supply is a frequent source of the disease, milk also may convey it; if disinfection is not complete and the excreta is allowed to dry it may be transmitted through the air, or if the attendants are careless about personal cleanliness they may contract it themselves and infect other persons. With all these

avenues of infection, typhoid fever is not regarded as a disease which requires isolation, and cleanliness, and rigid and immediate disinfection, are considered efficient safeguards.

Trace the source of infection

At the outbreak of a case of typhoid, the source of infection should be traced if possible, because the cases can multiply almost indefinitely, if the cause is not removed. Persons of all ages are susceptible to the disease, but it is most common between the ages of fifteen and twenty-five years.

Monitory symptoms

The period of incubation is generally placed at two weeks, although this varies, as do nearly all of the so-called typical symptoms. During this time there is usually a feeling of languor, slight pain in the abdomen, a cough, occasional nosebleed, and an increasing sense of exhaustion, with finally very severe headache. In many cases the symptoms during the first few days are not marked enough to have necessitated the aid of a physician, but if he is called he will probably find that the fever is gradually growing higher each evening, till it reaches 103° or 104°.

The second week

During the second week, the temperature remains high, and the pulse rate increases proportionately, and all the symptoms are aggravated. The listlessness generally increases, and with the continued high temperature delirium is often present.

Disinfection of stools.

The bowels may be constipated throughout the disease, or there may be diarrhœa, but in either case the disinfection of the stools must be carried out with conscientious vigilance.

Care of mouth and teeth

The tongue and teeth become coated with *sordes,* which must be removed by careful washing. It collects very rapidly, but cleanliness is one of the first requisites in the care of this disease, and with the proper solutions this deposit can be removed.

The small cloths and the swabs used to wash out the mouth must be wrapped in a piece of paper and burned and the attendant's hands must be washed in the disinfectant after this or any other service which brings them into contact with the body of the patient.

Characteristics of the disease

The characteristic rash on the abdomen appears at about the end of the first or the beginning of the second week, and there is generally considerable distention, with tenderness over the right side. During this week, and the third, the weakness and emaciation increase, and the prostration becomes more marked. The patient is often in a deep stupor, lying on his back, with the muscles relaxed, and it is difficult to arouse him enough for feeding, and to turn him for the necessary bathing.

Devices for cleanliness

There are very liable to be at this time involuntary passages of urine and feces, and the bed should be thoroughly protected. Pads made of thickly folded newspaper covered with waste absorbent cotton and cheesecloth or old muslin can be kept directly under the patient and are easily removed and burned. Often they prevent the bed from becoming soiled, and as they can be at once burned they remove some of the burden of disinfection and laundry.

Meeting specific needs of the case

The amount of food and water must be kept up, even if the patient has to be fed only a teaspoon at a time, and a stimulant will probably be ordered, for the heart is overworked, and must be taken care of. Unless absolute rest is ordered, as in the case of hemorrhage from the bowels, a patient must be turned on his side several times a day, supported by a pillow pushed in at his back, and rubbed and bathed to stimulate the circulation. In his depressed condition bed sores are very liable to appear, and a form of pneu-

monia may be caused if the position on the back is constantly maintained.

Aim of those nursing the typhoid patient

The aim of those caring for a case of typhoid should be chiefly to place the patient under the best possible hygienic conditions, to supply him with suitable food, so that Nature can carry on her work of healing, and to keep him from becoming a source of infection. It is to the nurse that the details of this treatment are left, and in no disease is the nursing more responsible for results. Orders must be followed absolutely.

Rest and diet

Rest in bed means that the patient must never sit up even, unless the physician permits it. Liquid diet does not allow an occasional deviation, even after convalescence, unless the change is ordered.

How to bathe the typhoid patient

Baths to reduce temperature are generally ordered. These vary from the simple alcohol sponging to the tub bath, which is in most cases rather too exhausting, and is always impracticable in a private house. The tepid or slightly warm sponging is as beneficial as one given ice-cold, and the patient offers much less resistance. A very good plan is to have a large rubber sheet the length of the bed, and at least half as wide; cover this with a cotton sheet, and spread it under the patient, using the method described in changing bedding on pages 31 and 32. Large bath towels may be used to cover him, and a portion of his body is exposed at a time. A large face cloth or a sponge is filled with water and the body is rubbed with long gentle strokes, letting the water trickle down on the rubber sheet. With this protection an abundance of water can be used, and the body allowed to dry off, instead of being rubbed with a towel. Such baths are generally ordered every three or four hours, while the temperature is high, and one for cleansing will be nec-

essary each day, for the function of the skin is strongly affected by the diseased condition.

Dangers in convalescence

During the fourth week the fever begins to lessen, the brain grows clearer, and all the symptoms subside. With the decline of the fever the appetite begins to return and the most trying period of the disease commences. Additions to the diet must be made with great caution, since many relapses have been caused by injudicious feeding. The hunger is all-absorbing, and the patient is often so unreasonable that it is very difficult to be firm and to remember the dangers.

ERYSIPELAS

Character and cause of erysipelas

Erysipelas is an infectious disease, characterized by an intensely inflammatory condition, generally confined to a limited area, ordinarily ushered in by a chill, and accompanied by high fever. It is believed that the poison gains access to the body through an abrasion or tiny scratch, and an open wound is especially liable to become infected. The affected area is swollen, red and shiny, its margins are distinct and raised, and it extends rapidly. Small blisters form on the surface and fill with fluid by which the germ of the disease may be conveyed. After the inflammation has subsided, desquamation takes place, and at this time, too, special care must be taken to prevent the spread of the contagion. Soothing applications will be ordered to relieve the burning and pain, the diet must be nutritious and easy of digestion, and very often there will be need of stimulant to support the strength. In order to prevent the transmission of the infection, the patient should be isolated, all dressings used about him must be promptly burned, and his bed-linen must be disinfected.

Its contagion and care

MALARIAL FEVER

The discovery of the source of malarial infection has made more difference in its prevention than in its treatment, although as the investigations proceed results along these lines will be attained. The bacteria are found only in the blood of patients, so no isolation or disinfection is required. Since infected mosquitoes convey the disease, the patient must be as rigidly protected from them as a person who is hoping to avoid contracting it. The reason why quinine has usually such a powerful effect is believed to be because it is poisonous to that specific germ, causing its destruction or rendering it harmless.

Protection of the malarial patient from mosquitoes

The chief characteristic of malaria is the periodic attacks which are generally described as chills, but which really include three stages: The cold feeling, with shivering and chattering of the teeth, introduces the attack, a period of intense fever follows, after which comes the sweating stage. These attacks recur at regular intervals, which may differ with the disease, returning every twenty-four, forty-eight, or seventy-two hours. While the fever is in progress the recurrence is uniform, the attacks appearing at the same hour. If it is increasing in severity, the intervals are shortened by half an hour or an hour, and if it is becoming more mild, they are correspondingly lengthened.

Characteristics of malaria

The severity of the chills may be somewhat lessened if the patient goes to bed shortly before the attack is expected, is warmly covered with blankets, surrounded with hot-water bottles, and is given a hot drink. When the fever comes on, the covering may be removed, cold drinks will be refreshing, and cool sponging will give relief, and may keep the temper-

Treatment of the malarial patient

ature down somewhat. In the third stage the perspiration must be wiped away with warm cloths, and after it is over and the patient has rested, a warm soap and water bath will be needed. If medication is being given, purgatives must not be given without doctor's orders, as they have the effect of clearing the system, and may thus rid it of the drug before it has done its work.

DYSENTERY

Definition of dysenteric conditions

An inflammatory condition of the intestinal lining leads to a form of diarrhœa called dysentery. There is usually some abdominal pain and tenderness and slight fever at the beginning of an attack, and a characteristic symptom is the continual desire to strain, which is called tenesmus. Mucus and blood are present in the stools, and the frequent movements exhaust the strength of a patient.

Care and treatment of the patient

Rest in bed is necessary, fluid diet, which may be rice-water or arrow-root gruel, is ordered, and the patient must be kept warm, and must be on the back as much as possible. Cool compresses applied to the anus often relieve the tenesmus, and starch injections sometimes soothe the irritation of the bowels. The starch is mixed with cold water, then enough boiling water is added to make a thin paste, which will flow easily through rubber tubing, and it is brought to body temperature.

The injection is usually given with a soft rubber catheter, a funnel receiving the mixture and leading it into the tube, and not more than four ounces need be used. The starch solution should be retained in the bowel, and the irritation is so extreme that any undue pressure would cause it to be expelled, so less, rather than more, should be given.

The stools have a very offensive odor, quite differ-

ent from that of ordinary healthy feces, and this may be somewhat overcome by the free use of chloride of lime. The micro-organism causing dysentery is confined to the intestine, so that strict disinfection is necessary. The rectal tube or catheter, as well as the bed-pan, should also be disinfected after use, and boiled at the termination of disease, and the same care must be given the soiled linen. It is well to keep the tube in a carbolic solution, which does not injure the rubber, and effectually destroys the germs. The catheter must be carefully rinsed before it is used again, since carbolic, even in a diluted form, is extremely irritating to mucous surfaces. The abdomen should be protected by a flannel bandage, and especial care should be taken with ventilation.

Disinfection during the dysentery and after

IX

INFECTIOUS DISEASES
(CONTINUED)

Influenza — Pneumonia — Tuberculosis—Forms of the Disease — Heredity—Channels of Infection—General Precautions—Special Precautions for Attendants—Exercises Beneficial to Those with Tendency to Tuberculosis—Suggestions for Patients—Care of Patients—Cerebro-Spinal Meningitis

INFLUENZA

INFLUENZA has also been proved to be a disease of bacterial origin. Epidemics of influenza are frequent, and their results are so varied that it is hardly possible to predict what course the disease may run. The initial symptoms are usually those of a heavy cold, but with an excessive soreness of the limbs and body, and with a marked mental depression. The particular danger lies in the fact that so often there are serious complications, or that a person is left with a weakness in the system which causes the development of disease. The infection is probably conveyed in the nasal and throat discharges, and is received in the air which is breathed.

Bacterial origin of influenza

How the infection is conveyed

No means of prevention has been found effective, but since most of the serious consequences have been caused by too short a period of convalescence, rest in bed would seem to be a necessary precaution. A great deal of relief from the bruised feeling of the body can be gained by rubbing, and cold or hot compresses generally quiet the headache, so that sleep is possible. The weakness will be found to last for a long time, and the strength should not be forced or taxed unduly.

Safeguarding the patient

A change of air, strict attention to hygiene, nourishing diet, and rest, will be found most helpful in restoring health.

PNEUMONIA

Infectious nature of pneumonia

The infectious nature of pneumonia has been unmistakably proved, and the importance of careful disinfection is now more generally recognized as necessary to prevent the spread of the disease. It has taken the epidemic form in so many instances that even those to whom the results of bacteriological investigations are unknown must be convinced that it is one of the communicable disorders.

Care in disinfection

The germ is contained in the sputum, which must therefore be received in moist cloths or in an especially prepared receptacle and burned or disinfected. In all cases where there is abundant discharge from the nose, throat, or lungs, whether it be a simple catarrhal cold or tuberculosis, hygiene demands this precaution. The washing of handkerchiefs, so soiled, should never be required of any one, and they may carry latent germs of disease before its presence is recognized in the patient.

Where the bacteria of pneumonia work

Pneumonia is inflammation of the lung tissues. It generally is confined to the right lung, but both may be involved. It is caused by exposure to cold, or to sudden variations of temperature, and generally unhealthy surroundings predispose one to it. The bacteria causing it are confined to the lung substance, but the poisons which they produce are taken over the system in the blood stream, causing the general constitutional symptoms.

Stages of the disease

In the first stage, the affected part of the lung becomes gradually filled with a secretion which in the second becomes consolidated. In the third stage, if the

disease is progressing to a favorable termination, resolution, or the "gradual restoration of an inflamed part to a normal condition," takes places.

Beginnings of pneumonia and diet

The disease commonly begins with a chill, and a sudden sharp pain through the affected side. Its progress is very rapid, the pulse and temperature mounting within a few hours, and the respiration soon becoming labored and shallow, with the characteristic dilation of the nostrils. With the fever so high, and extra activity demanded from the heart and the respiratory centres, the prostration is extreme. Fluid diet, generally milk and broth, must be given with regularity, in the proportion of a coffee-cup every three hours. The intervals, and the amounts, may have to be lessened, and if the patient sleeps during the night he will probably not be disturbed. The stomach must not be overloaded, since that throws more work upon the entire system, and the vitality is everywhere at low ebb.

The chief danger lies in the failure of the heart from overwork.

Cough and sputum

The cough is at first dry and hacking, causing severe pain in the chest, and the sputum is scanty. Later, the cough becomes looser, and the expectoration is more abundant, and of a characteristic rusty color, caused by the blood which streaks it.

When the fever disappears

Between the third and tenth days, the temperature suddenly drops, sometimes from 103° or 104° to 98°, or even lower. With this loss of fever, there is usually profuse perspiration and excessive weakness. The patient must be saved long exertion now, and the pulse must be watched carefully.

The chill of clothing, damp with the perspiration, is very unpleasant, and also the danger of catching cold, which is very slight when the fever is high, increases. The exertion of making changes as frequently

as would be necessary is unsafe, but if small bath towels or pieces of thin blanket are heated and laid next the skin over back and front, and changed as soon as they become damp or cold, it will lessen discomfort, restore the heat of the body, and thus serve as a slight stimulant. The nourishment during this stage should be given hot, on account of its action on the heart. The dangers of this period past, the patient goes on to rapid recovery.

Careful attention to clothing and nourishment

Convalescence is usually uneventful, with a surprisingly quick return of strength. A patient recovering from pneumonia must guard against exposure, as there will be increased susceptibility for some months.

Convalescence and precautions against exposure

Young children are very liable to have brain complications in an attack, and if a person has used alcohol to excess his chances of recovery are materially lessened.

TUBERCULOSIS

Tuberculosis has been called "The Great White Plague," and in view of the fact that it is a disease which attacks all ages, in all countries, that it is responsible for every sixth or seventh death, that yearly in the United States one hundred thousand persons are swept away by its ravages, it may well be pronounced the greatest scourge of modern times.

The greatest scourge of modern times

Tuberculosis often accompanies or unfavorably influences other diseases, and the fact that it is latent in the system is often the cause of the slow recovery or possibly fatal result of seemingly mild disorders. The disease is of bacterial origin, being caused by the entrance into the system of a particular form of microbe, known as the tubercular bacillus, from its rod-like appearance when seen under the microscope.

Bacterial origin

If this germ finds the soil suitable for its growth,

it multiplies rapidly, and causes the formation of tubercles upon whatever tissue it attacks. These tubercles have a tendency to spread and break down, causing, first, interference with the functions of the part affected, and second, almost certain systemic involvement.

How the germ acts

Tuberculosis may be regarded as an infectious or communicable disease, rather than a contagious one, prolonged exposure under certain favorable conditions generally being necessary to its transmission. If the sputum and other discharges of tuberculous patients, which contain millions of the dangerous bacteria, are properly taken care of, there is very little danger in being in contact with them.

How it is communicated

Nature has provided two safeguards for us against the invasion of the disease. The nasal secretions when in normal condition are destructive to the germs before they can enter the lungs. Also the blood, we can remember, is composed in part of white corpuscles, whose province it is to wage warfare against dangerous parasites, and destroy them.

Nature's safeguard

FORMS OF THE DISEASE

The most frequent form of the disease is pulmonary tuberculosis or phthisis, in which the lung tissue is attacked. The disease may be either acute or chronic. In the early stages of the former, the portions of the lung invaded by the bacillus become consolidated and later break down, leaving cavities. The acute form is usually rapidly fatal, but in chronic cases the disease is frequently arrested.

Acute and chronic forms of the disease

In either, the great danger of infection is from the sputum, which is charged with many millions of bacilli, which, if once set free and allowed to become dry, mingle with the dust and may be inhaled by susceptible per-

The danger of infection and symptoms

sons and set up the disease. The symptoms are cough, expectoration, pains in the chest, loss of appetite, gradual but steady decrease in weight, night-sweats, and slight rise of temperature toward evening. Tuberculosis may develop in various parts of the body, no tissues being exempt from its invasion. The more common points of attack are the throat, the uterus, the joints and bones, and the skin. Tuberculosis of the skin is known as lupus.

The disease in various parts of the body

HEREDITY

The popular theory of the transmission of tuberculosis from parent to child is fast losing its hold upon the scientific world, and experience is day by day bearing out the conclusions against it. There is, however, a marked tendency or predisposition toward the disease in the offspring of tubercular parents, which must be reckoned with. The child comes into the world with the inheritance of a frail body, in many cases with a narrow chest and poor circulation, with little fondness for out-of-door sports, and it may be with no attention paid to securing for him an active and healthy body. What wonder then that the seeds of disease early find access to his body, and suitable soil for development there, or that he should be thought to have inherited the disease directly from his parents?

Predisposition toward the disease and a weak body

Especially is this true when one child after another in the same family sickens and dies with the disease. It is, however, the belief held by most of the noted scientists of to-day that the tubercle bacillus does not exist at birth in the body of a child born of parents one or both of whom may be victims of tuberculosis, but that it may find ready access by means of the impaired vitality forced upon the child by such parentage is easily conceded.

Why the child sickens

How the child may be safeguarded

It is a comforting thought following this theory that parents can in very many cases successfully protect their children against the disease once thought to be almost inevitably in store for them. By careful selection of every means to secure the best hygienic surroundings and the stoutest and most vigorous state of health, both bodily and mental, many children pass through the precarious period of childhood and approach adult life well equipped for warding off the disease.

There must, however, be extreme care on the part of the parent, and oftentimes special precautions exercised by the child against the disease.

CHANNELS OF INFECTION

Infection by the tubercle bacillus may take place in one of three ways: namely, by inhalation, ingestion, or inoculation.

The first channel through the lungs

The first is the commonest way. It is the breathing into the lungs the particles of dried sputum or other discharges which have become mixed with the dust.

The second way of infection through the alimentary canal

These same particles sometimes become mixed with food or drink, and enter the alimentary canal, which forms the second mode of infection. Carelessness in carrying the hands to the mouth after handling soiled linen is another means of communicating the disease. Sometimes a tubercular patient in sneezing or laughing expels a particle of saliva which may contain the bacilli, and one is not safe who is facing him at a shorter distance than three feet, as these particles may be inhaled or swallowed. Another source is through infected milk or meat, particularly the former, which should always be sterilized if it comes from a suspicious source.

The third and less common method of infection is by inoculation through a scratch or slight wound. This is liable to occur at any time when the hands come in contact with tuberculous matter, hence any abrasion on the hands should always be protected.

The third channel through a scratch or wound

GENERAL PRECAUTIONS

There are general precautions against the increase of tuberculosis, which can be of great value only when all intelligent people feel their force and combine in checking the ravages of the dreadful disease.

(1) The better ventilation of schools, factories, offices, and public buildings.

The precaution of ventilation

(2) More attention to the physical well-being and development of youth.

Attention to physical well-being

(3) The selection of better foods and their preparation under more sanitary conditions.

Better prepared foods

(4) The limiting of occupations that tend to the development of the disease.

Sanitary precautions in occupations

PRECAUTIONS FOR ATTENDANTS

(1) The sputum must be prevented from drying. The sputum mug should be partially filled with some disinfectant fluid, or, if necessary, moist rags can be used, and burned before they have a chance to dry. Sputum mugs that are cracked or nicked should never be used, as germs will get into the crevices and become a source of danger. Any such receptacle should be of metal, china, or glass, so that it can be boiled. A pair of rubber gloves is very useful to slip on when washing these mugs.

Care of sputum and disinfection of sputum mugs

(2) The patient's linen should be placed in a disinfectant or boiled before mixing with the general laundry.

Disinfection of body linen

(3) Dishes used by the patient should be kept sep-

Disinfection of dishes

arate from those for family use, and should be boiled frequently.

Duty of the patient

(4) The patient should be instructed always to hold a handkerchief before his mouth when coughing or sneezing, so as to avoid any danger from particles of mucus that might be expelled at the time.

Dusting and cleaning the patient's room

(5) Dust cloths should always be moist, and must be burned or boiled or soaked in a disinfectant after using. The floor should never be swept, but should be wiped, also with a moist cloth. A carpet must not be allowed to remain on the floor.

How the home nurse of a tuberculous patient must safeguard her health

There are various ways by which one who has the care of a tuberculous patient can guard her health, and it is most important that every effort toward maintaining a healthy condition of body and mind be made, if one is to ward off infection successfully.

A person who is weakened physically from any cause should never be allowed to undertake the nursing in any infectious disease, and there must be regular hours for food and rest if the health is to be maintained. One should never go hungry to the sick-room, and at all times the body is to be well nourished. Plenty of out-of-door exercise is essential, and at times when this is not practicable it may be substituted by breathing exercises taken before an open window. Deep breathing which admits plenty of oxygen to the lungs is an excellent method of preventing tuberculosis.

EXERCISES BENEFICIAL TO THOSE WITH TENDENCY TO TUBERCULOSIS

Loose clothing a requisite

The following exercises will be found of very great benefit to one having a tendency to tuberculosis or to those who may be especially exposed to it. A person with tightly fitted neckwear or tight clothing can

never breathe properly. There should always be perfect freedom about the neck, chest, and abdomen.

First simple exercise in deep breathing

Heels together, head erect, chest forward, hips thrown back, the arms hanging at the sides with the palms turned in. With mouth closed take a deep inspiration, and hold the breath for a few seconds, then exhale slowly. Next during the act of inspiration raise the arms slowly to a horizontal position, keep them there while holding the breath a few seconds, and then gradually lower them as the breath is exhaled. The act of expiration should always be a little more rapid than that of inspiration.

Second exercise

The second exercise is like the first except that the arms are carried up over the head in a vertical position till the tips of the fingers meet over it.

Third more difficult exercise

With the same military attitude as at first, the arms are extended at full length in front of the body in a horizontal position and with the backs of the hands meeting as in the act of swimming. The arms are then moved as if dividing the water during inspiration till the hands meet behind the back. The breath is then held for a few seconds, and the arms are carried forward during exhalation.

The arms should not be allowed to drop out of the horizontal position at any time. This exercise is made easier by rising on the toes during expiration.

To overcome the habit of stooping

To overcome the habit of stooping, the following exercise is recommended: Military position, hands on hips with thumbs in front, then slowly bend back as far as possible during inhalation. Remain in this position a few seconds while holding the breath, and then rise during the act of exhalation. These exercises should not be begun too vigorously.

It is better to commence with the simple exercises, reserving the more difficult until the others have been

Never use the exercises when tired

practiced for several days. They should never be taken when one is very tired, and should not be kept up until one becomes so. They should be taken several times a day, and by their continued use deep breathing will soon become a habit. Breathing exercises, though very useful to tuberculous patients when properly directed, should on no account be taken unadvisedly nor without the guidance of the physician in charge.

Nor without a physician's advice

Caution about sleeping with patient

A person having the care of a tuberculous case should on no account sleep in the same bed with the patient, nor occupy the same room at night if it is possible to avoid it. A couch placed in the hall just outside the door of the room can usually be arranged for use at night, and is invariably to be preferred.

SUGGESTIONS FOR PATIENTS

How to carry and use a pocket sputum flask

The matter of expectoration and facilities for the disposal of the sputum has received much attention, and a number of devices have been arranged for the use of consumptives. A very satisfactory receptacle for a patient who is not confined to the bed or chair is a pocket flask, which is unbreakable and can be easily cleaned. One made of metal and containing a movable funnel is perhaps one of the best. It can be placed inside an ordinary pocket-handkerchief with an elastic band placed round the neck of the flask, outside of the handkerchief, to keep it in place, and as it can be easily manipulated with one hand it is used without attracting attention.

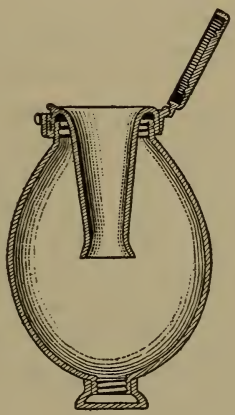
Pocket sputum cups for street use

For street use there have been devised some self-cleaning spittoons which it is desirable should be placed freely in all large cities. Pocket receptacles may be obtained at any large drug store or ordered if they are not in stock. Patients who refuse to use

portable sputum cups should have a pocket lined with rubber in which they can place the cloths used, and these must be burned before they become dry.

There are some ways in which a patient can guard against re-infection of himself, and this is very necessary, especially if the case is a mild one and the disease confined to a limited area. He should never swallow the sputum to avoid expectoration, as in this

Guarding against re-infection



Pocket Sputum Flask

way the bacilli are carried directly to the intestines, which sooner or later are sure to become infected. He should always carry two handkerchiefs, one for wiping the mouth and another for the nose, so that there can be no danger of the infection being carried to the nasal passages and thence to the throat.

As a safeguard for himself and others he should be careful not to caress household animals, which frequently carry the germs from one person to another in their fur.

Germ-carrying furs

CARE OF PATIENTS

What the tuberculous patient should eat

The diet of tuberculous patients should be entirely wholesome, and as hearty as is practicable with the condition of the digestion. Scraped beef, milk, whole-wheat bread, and raw eggs should be given in abundance. A fresh raw egg can be made very palatable if it is dropped carefully into a glass containing a little lemon-juice, sprinkled with a little pepper and salt, and covered with more lemon squeezed over it. Sherry wine is sometimes used in place of lemon-juice.

Tuberculosis is curable

In conclusion let us add that the message of the scientific world along the line of the tuberculosis investigation is full of cheer and confidence provided there is obedience to simple hygienic rules. This is what the sanatoria are trying, and with already a marked degree of success, to set before us. Tuberculosis is both a preventable and a curable disease.

No specific climate

There is no specific climate necessary for its treatment, although some climates may have a better influence than others upon it.

No specific medicine

There is no specific medicine which can act directly upon the germ causing the disease, or upon the poisons which that germ produces. The attitude of the medical world toward the segregation of tuberculous patients has changed from that of indifference or even hostility to one of hearty indorsement of the methods carried out by the modern sanatoria.

Principles of treatment

The principles of treatment there adopted are: Life spent in the open air, the nutrition of the body maintained at the highest point, and rest suited to the patient's condition and to the stage of the disease.

An arrangement for carrying out home treatment on the sanatorium basis is often practicable, when for

some reason it is not advisable or necessary to send the patient away. A veranda can be built on, convenient to the patient's living-room, where he can rest during the day and can often sleep during the night. This should be covered by a roof or awning, and in most climates it will need to be inclosed in wire netting as a protection against mosquitoes and flies. The reclining-chair may be of willow or an ordinary steamer-chair well cushioned will answer the purpose.

To have a home sanatorium

If the clothing is warm, and hot-water bags are used at the feet and about the body, a person can live out of doors in really cold weather. A very good arrangement for protecting one from draughts is a beach-chair with high back and sides, like the old sedan-chairs. If the seat is taken out of this and the head of the steamer-chair is drawn inside it, the head and shoulders can be effectually protected from draughts, and yet the lower part of the body may lie in the sun. This is a better arrangement than shielding the patient with an ordinary screen, because the chair is stable and solid and can not be blown over.

During the winter months

It may not be necessary for a person to give up all occupation, and to become a helpless invalid. If tuberculosis is recognized in its incipient stage it is inclined to yield quickly to treatment. If the patient has an indoor occupation, if he is working in an atmosphere which is carrying foreign particles into his lungs with every breath he draws, his first duty is to find another method of earning his living. Every year increases the number of persons who are fighting the disease, or a tendency to it, by giving the lungs a chance to expand in the fresh open air and by furnishing the tissues with the best possible nutriment, while at the same time the daily occupations of life are carried on.

Changing one's occupation in case of tuberculosis

Duty of the patient to himself; to the community

It is the neglect of the premonitory symptoms that makes the disease such a menace to patients contracting it, and it is their lack of observance of precautions that makes their presence in the community an actual danger.

CEREBRO-SPINAL MENINGITIS

Infectiousness of meningitis

Meningitis is an infectious disease, though the specific micro-organism producing it has not been isolated. In the highly malignant form of the disease there is hardly time to recognize the nature of the trouble before the end has come, but when the attack is milder it is less often fatal, but needs untiring and intelligent care.

Characteristic symptoms

The excessive stiffness of the muscles of neck, spine, and extremities, the deafness and headache are very characteristic of the disease. Dizziness, nausea, constipation, restlessness, delirium, and double-vision are usual accompaniments, the temperature is not necessarily high, and an eruption of the skin appears frequently enough to give the disease its name of "spotted fever." It generally occurs in epidemics, and attacks both children and adults, although it is more common during the first twenty years of life.

Convalescence

The milder cases run for a period of from two to four weeks, convalescence being rather slow. The deafness, dizziness, and muscular stiffness last for some time and excitement and fatigue must be avoided.

Treatment must be individual

The different symptoms receive individual treatment as they occur. If the temperature is high, sponge baths and rubbing with alcohol are given. The pains in the spine are treated with either cold or hot applications according as the system seems to need a depressant or a stimulant, and the restlessness and

delirium are often relieved by the use of an ice-bag on the head.

As soon as the stomach can bear food it should be given with great regularity. Liquids will be ordered while the fever continues, and during convalescence the diet should be abundant and easily digestible. All excitement should be guarded against, and every condition that makes for health should be secured. Diet

An inciting cause of the disease is believed to be poor food and bad air, combined with a depressed state of the system, which furnishes a favorable condition for the growth of the disease germ. One point that we must emphasize in our treatment of the disease is the fact that it is communicable from person to person. The nasal and throat secretions should be disinfected or received in cloths which can be burned, and the utmost care should be taken in regard to personal cleanliness and the care of utensils. Good health, fresh air, and suitable nourishing food are the best safeguards. Mild cases when neglected may leave the system in a condition of increased susceptibility to subsequent attacks, or a deficiency in the sense organs causing deafness, loss of the use of the vocal cords, or both. The disease is communicable

Necessary safeguards

X

ACUTE AND NERVOUS DISEASES

Rheumatism—Tonsilitis—Bronchitis — Pleurisy — Appendicitis—Bright's Disease—Neurasthenia—Hysteria—Epilepsy—Insanity

RHEUMATISM

ACUTE inflammatory rheumatism is a disease characterized by pain and swelling of the joints, accompanied by high fever. Usually one joint after another becomes involved, and in severe cases the pain is extreme, so that even the weight of the sheet on the affected parts is intolerable and the slightest jarring of the bed or change of position causes agonizing pain. The disease is usually brought on by exposure to damp and cold and generally runs a course of several weeks.

Inflammatory nature of rheumatism

Profuse perspiration accompanies the disease, and the clothing must be changed as it becomes wet with the increased moisture of the body. For this reason a night-dress opening down the back which can be slipped on and off the patient with the least possible disturbance is essential for such cases. A thin flannel shirt opened down the back in the same way should be worn next the skin unless a flannel night-dress is preferred.

Care of the clothing

The advisability of giving the daily bath must be left for the doctor to decide. As the perspiration is always profuse, and has a characteristically strong odor, there should be frequent sponging with warm alcohol. All bathing should be done under cover without the slightest exposure.

Precaution in bathing

The danger of bed-sores forming should be particularly kept in mind. The increased moisture, owing to profuse perspiration, and the patient's inability to turn himself are exciting causes which might readily lead to bed-sores if special care is not taken to prevent their formation. The danger of bed-sores

Rheumatic cases are always liable to heart complications and care must be taken not to move a patient suddenly or as he improves to allow him to make any sudden exertion. Sometimes even after convalescence seems well established the heart function is still imperfect, and may remain so for some weeks or months, if, indeed, the patient is not left with a chronic weakness of that organ. On this account any orders the doctor may give in regard to rest and careful exercise need not seem unreasonable. The action of the heart

There is likely to be great irritability of the nervous system and often marked mental depression. Distaste for food as in all fever cases may be expected, and ingenuity and untiring patience in preventing it is demanded of the nurse in order to keep up the necessary amount. The diet in rheumatism is always carefully regulated. During the fever stage nothing but liquids in liberal quantity may be given. As the fever declines light diet is allowed, though all foods having a tendency to produce acids in the system must be eliminated. Regulation of the diet

In general the following diet list may be useful during convalescence: Eggs in moderation, small quantities of farinaceous foods, toast, stale bread of rye or whole wheat flour, milk toast, zwieback, graham gems, crackers, and hominy. Vegetables—fresh green varieties, celery, lettuce, watercress, salads, young peas and beans, and spinach. For des- A diet list for a rheumatic patient

serts—oranges, lemons, cranberries, apples, apricots, pears, peaches, cherries, jellies, blanc-mange, stewed or roasted fruit. Meat should be taken once a day only, and should be confined to the white varieties chiefly—mutton, chicken, bacon, sweetbread, pigeon, and pig's feet.

A beverage list

Beverages will be useful during the fever to relieve the great thirst, and a plentiful amount of liquids assists toward recovery. Plain soda, toast-water, lime-juice, lemonade, and mineral waters may be given with the doctor's approval. Liquids should be taken through a glass drinking-tube, which it is necessary to wash at once after using in order to keep it clean, unless a small brush is used which serves to properly clean the inside of the tube.

A device for relief

In cases of chronic rheumatism, pain may sometimes be greatly relieved by wrapping the joints in cotton wool. If there is a slight rheumatic tendency and the joints feel stiff and painful in the morning, the use of cotton over the affected part frequently puts an end to the trouble.

TONSILITIS

Marks of tonsilitis

Inflammation of the tonsils often follows exposure to cold, fatigue, or foul and poisonous air. Although not usually in itself a serious affection, it is extremely prostrating and is attended by high fever, severe headache, and general soreness of the limbs and back. The tonsils themselves become enlarged, so that talking is difficult and the voice sounds thick. The glands about the neck are also more or less swollen. The white spots seen on the tonsils may be confused with the gray patches of diphtheria, though the distinction is usually recognizable to a practiced eye. No positive diagnosis, however, is likely to be made if there

is any doubt in the matter until a "culture" has been taken from the throat and subjected to examination under the microscope. This is now a routine measure with many physicians whenever the throat is affected.

Care and treatment of the tonsilitic patient

The patient should be kept in bed and on liquid diet, and a gargle prepared for the relief of the inflamed tissue of the throat. If no special prescription is given by the physician one made of hamamelis diluted half with water is useful because of its slightly astringent property. If the area of white patches is large in the throat a solution of peroxide of hydrogen one part in six of water will aid in cleansing the throat.

Special care must be observed to keep an even temperature in the sick-room, especially when the patient begins to sit up, as relapse sometimes brings with it serious complications. All dishes used by the patient should be kept separate from those of the family.

The fever in tonsilitis is of short duration, but it is often several weeks before a person regains his usual strength after an attack.

BRONCHITIS

Signs in an attack of bronchitis

Bronchitis may follow a cold or occur as a symptom in the progress of other diseases. There is a feeling of tightness and soreness across the chest, a hard, dry cough often coming in severe paroxysms, and, as in tonsilitis, the weakness and aching of the head, back, and limbs is marked. The fever does not run as high as in tonsilitis. In an ordinary case of bronchitis the cough may be expected to loosen in three or four days, and expectoration becomes freer, giving great relief.

The bowels should be kept open and free action

Condition and care of the patient

of the skin secured by means of the bed-bath and alcohol rubs. It is especially important that the air of the room should be kept pure and the temperature not above 70°, and that there be plenty of nourishing food. The patient must avoid sudden change of temperature in going from room to room when convalescence begins, as the susceptibility to cold is increased.

PLEURISY

What the pleura is

The term pleurisy indicates an inflammation of the membrane or pleura which envelops the lungs. This membrane is so arranged as to fold back, forming also a lining to the chest cavity. In health it secretes a certain amount of fluid which serves to lubricate the two surfaces, so that they slide easily against each other as the chest rises and falls in breathing.

Inflammation of the pleura

Inflammation often occurs as a complication of pulmonary disease or it may follow cold, exposure, or injury. The membranes become dry and no longer rub smoothly against each other, and this causes sharp pain on inspiration. This condition may terminate in a restoration to the normal state in a few days or continue for some weeks.

Counter-irritants

Counter-irritants in the form of a hot-water bag or a mustard plaster, if applied immediately upon the first indication of pain, may sometimes ward off an attack and a broad band of adhesive plaster carried entirely around the chest to constrict its movements gives considerable relief.

Conditions of the fever

Sometimes the temperature continues to remain high and the breathing more or less difficult, though the pain lessens or may entirely disappear. These symptoms may mean that the space between the two

surfaces of membrane is filling with fluid and their separation has caused the pain to diminish. This condition may subside gradually and the fluid become absorbed or pus may form and an operation become necessary.

APPENDICITIS

Causes of appendicitis

Appendicitis is an inflammation confined to a certain part of the intestines known as the vermiform appendix. The disease was commonly called "inflammation of the bowels" before modern surgery showed that the origin of the trouble is in the appendix or small appendage on the right side of the intestines. Inflammation may be due to blows, falls, great physical exertion, a strain, improper food, or to a small hardened mass—rarely to a foreign body—which may collect and obstruct the opening to the appendix. Sometimes it is associated with rheumatism, influenza, or typhoid fever.

Several forms of the disease

There are several forms of the disease recognized as acute, chronic, or recurrent. Sometimes it happens that grave symptoms are obscured and the patient may not seem very ill, though in reality the condition is most serious. For this reason the advice of a physician should always be sought if there is any indication of the following symptoms:

Grave symptoms

The pain may be sharp and colicky or dull and aching. It is at first diffuse, but usually becomes localized on the right side of the abdomen over the region of the appendix. Nausea and vomiting is usual and constipation is more common than diarrhœa. There is apt to be tenderness over the right side, and sometimes a distinct tumor can be made out. The temperature is not a safe guide, as it may be found normal when other symptoms are grave. The charac-

teristic position of the patient is to lie flat on the back with the right leg drawn up.

Three courses the inflammation may take

The attack may come to an end in one of three ways—by resolution, in which case the symptoms gradually subside so that in a week or ten days the patient is entirely recovered; by abscess formation with increased pain and more extensive tenderness over the abdomen, or with a lessening of the pain and general symptoms if the abscess has become thoroughly walled off; or there may be a rupture of the appendix followed by a general peritonitis.

The question of operation

The question of operation must of course be left to the decision of the doctor and surgeon, but in general it may be said that unless operation is too long delayed it is rarely attended with serious results, and that however mild the attack there is always danger of alarming conditions developing so rapidly that operation comes too late.

Cautions

The patient must be kept in bed and on a strictly liquid diet. No instructions can be given for treatment, but it will be remembered that in any inflammatory condition the application of heat must be used with caution.

BRIGHT'S DISEASE

Causes of Bright's disease

Acute Bright's disease or kidney trouble, presenting albumen in the urine, may be brought on by exposure to cold, as a result of extensive burns, or as a sequel of some of the infectious diseases, especially scarlet fever, typhoid, or diphtheria. It may also occur during the course of pregnancy.

Characteristic changes in the disease

The most characteristic changes are indicated by the urine, which diminishes in quantity and becomes albuminous. There is usually a puffiness about the ankles and eyelids, which may spread over the entire

body. Headache and gastric disturbances are usual, and only the most easily digested foods can be taken.

Treatment to restore normal function of the kidneys

It is evident that in any disease of the kidneys the waste of the body is not being properly removed, and the defective work of those organs must be supplemented by increasing the activity of the skin. Hot baths are given and drugs to induce free perspiration and to increase the amount of urine. The bowels should be kept freely open also. Every means must be utilized to restore the normal function of the kidneys.

Hopeful signs

Increase of the dropsical condition and failure to secrete the normal amount of urine are discouraging symptoms, whereas the reverse conditions may be regarded as hopeful signs.

Giving the bath

When giving the hot bath the room should be warm and entirely free from draughts, as any exposure is particularly dangerous. The patient should be put at once after the bath between warm blankets with abundant covering and hot-water bags at feet and sides. A warm drink will also aid in producing perspiration. After half an hour the covers may be taken off gradually and the patient wiped dry with warm towels.

NEURASTHENIA

Cause of neurasthenia

Neurasthenia or nerve-weakness is a condition indicating lack of power of the nerve centres of the body. The common cause for neurasthenia is overwork combined with anxiety. Some persons having large expenditure of nervous force have little power of creating nervous energy, and wherever the daily expenditure of nerve force is greater than the income of nervous energy the result must plainly and inevitably be nerve-weakness or neurasthenia. There

may be a local or a general neurasthenia, the former often leading to the latter; hence any nervous disorder, even when confined to a particular part of the body, must be regarded as serious because of the possibility of its resulting in a general nervous breakdown.

Symptoms of mental overwork

Some of the symptoms of mental overwork are increasing reluctance to take up daily duties, weakness of memory, insomnia, and a feeling of weight or constriction about the head. Sometimes for the time being there is an abnormal desire to work, accompanied by vigorous brain activity and an almost complete inability to rest or sleep, which heralds a serious and sudden collapse of nervous energy.

Physical symptoms

There is usually, though not always, great depression accompanying general neurasthenia, and the patient becomes increasingly morbid until his condition seems to border on insanity. The feet and hands are often clammy and cold and there may be profuse perspiration following the least excitement. Shortness of breath and rapid pulse, itching, neuralgia, and nervous headaches are symptoms of this disorder.

Recovering from neurasthenia

Recovery from a condition of neurasthenia is always very gradual, and must be gained chiefly through rest and proper food. The special method of treatment adopted must depend largely upon the degree of the nerve exhaustion. In attempting to rest an excited, worn-out brain the effort must be to remove all anxiety and brain-work while still endeavoring to keep up the interest of the patient and to establish the general health of the body more completely.

Changing the method of living

To secure this the method of living must be entirely changed as far as mental atmosphere is concerned. All brain-work is to be excluded and fresh air and exercise in some form is to be added to

proper feeding and rest. Quiet travel when properly directed affords one of the best means of obtaining the desired change in cases where the general strength will permit. An ocean voyage which provides mental quiet, fresh air, and an escape from business or domestic activities, or camp life, which may add the element of exercise in any amount desirable for the patient, are means which probably afford the shortest road to complete recovery.

An ocean voyage beneficial

To persons of slender means to whom the luxury of travel must be denied it should be borne in mind that cessation from mental work is an absolute requirement, whereas such a modification of the method of living may be made possible as to take the place of the complete change of scenery which is desirable. For severe cases the so-called "rest-cure" which has been instituted by Dr. S. Weir Mitchell is frequently most beneficial. The principles of this cure are "absolute rest, forced feeding, and passive exercise." Complete isolation from friends and relations is usually insisted upon, and as far as possible entire rest of both body and mind is secured. Extreme care is exercised in the feeding of patients, and massage and electricity are relied upon to provide the required amount of exercise. The daily routine is so arranged as to take up the patient's time and attention in order that the confinement may not seem intolerable.

"The rest-cure"

Need of extreme care in food

Under the guidance of a wise physician and with the co-operation of the family and of the patient himself, an approach to this method of treatment can be made in the home by arranging a daily schedule to include stated periods of rest, exercise, and frequent regular feedings.

Wherever there is a derangement of the nervous system it should be understood that the nerves them-

Supplying defective nutrition

selves are suffering from a lack of proper nutrition, which we can in part supplement by a judicious overfeeding, provided the waste of the body is eliminated at the same time. The proportion of fats is always increased in the food recommended for nervous patients. This need is supplied by a diet of milk, butter, cream, and the fats of meat, of which bacon is the most digestible.

The reducing of expenses in sanatoria

At the present time the expense attendant upon treatment at most sanatoria necessarily shuts out a large class of patients, but as the success of the new methods gains footing in the popular mind we shall have public sanatoria as we have general hospitals for the relief of those who can not afford expensive treatment. Special rates are already made at some of the well-known sanatoria.

HYSTERIA

Hysteria an actual malady

Very few people other than doctors and nurses recognize that the term hysteria stands for an actual malady. The person who exhibits hysterical fits or who is morbidly emotional and defective in will-power is suffering no less truly from a disordered state of the nervous system than is the neurasthenic or insane person, and the establishment of curative measures is equally important in both cases.

Those most apt to suffer from hysteria

Hysteria is more common among women than among men, because of their more excitable and sensitive nervous system. It develops more often between the ages of fifteen and twenty-five years, and the tendency is greater among young people whose parents belong to the nervous type or whose education and mode of life tends largely to indoor, luxurious living rather than to the more robust out-of-door life. The

disease may also follow as a result of overwork, dissipation, or a long period of severe pain.

Strange manifestations of hysteria

The manifestations of hysteria are very varied. The unnatural craving for sympathy which is one of the characteristics of the disease leads to such warping of moral purpose that simulation of almost every known disorder is the common practice of hysterical patients. It is very difficult for one to realize that this deceit results from the fact that the emotional nature dominates and that morbid ideas have full sway—the dread of a certain disease, for instance, being so intense as to cause a patient to feign its symptoms. We may regard a person in this condition as in some measure irresponsible for her acts because of the tremendous power the imagination has over conduct.

Common symptoms of hysteria

Some of the common symptoms to be observed are retention of urine or the passage of abundant and light-colored urine, neuralgia, the sensation of a ball in the throat (globus hystericus), paralytic disturbances, and spasms of one kind or another. Beast mimicry, in which the sounds and movements of the lower animals are imitated, is observed among children.

Treatment of the difficulty

The treatment of hysteria is both preventive and curative. The results of inheritance may be largely overcome by careful education of the child, and an effort to secure a normal physical development together with a healthy and robust nervous system. Self-control must be demanded of the child, and a spirit of unselfishness cultivated which may offset in a large measure the self-centred interest which is so marked a characteristic of the disease. When the disease is once established it is often treated like neurasthenia, with which it is closely allied. Hysterical fits need no treatment and the less notice a patient

gets on such occasions the quicker will the paroxysm subside and the less frequent will they become.

Withholding sympathy and teaching fortitude

In general it is safe to say that sympathy must be rigidly withheld and all effort directed toward teaching the patient how to gain a proper self-control. If complaints do not reap sympathy they will gradually cease. Sometimes the hysterical attacks are made to result very disagreeably to the patient and are so broken up, as when a physician arrests a paroxysm by the injection of a drug which causes vomiting. It is possible by some such treatment, if wisely administered, to effect a complete cure of the attacks.

EPILEPSY

Cause of epilepsy not known

The cause of epilepsy is very little understood. The attacks are occasioned by some disturbance of the nerve force occurring irregularly without any apparent cause, and are attended by loss of consciousness and more or less convulsive seizures.

"Reflex epilepsy"

What is known as "reflex epilepsy" manifests very similar symptoms and may follow injury to the head in which the skull has become indented, causing pressure upon the brain. In the latter case a certain measure of relief is sometimes gained by means of operation, if that is thought advisable after consultation. Convulsions resembling epilepsy sometimes accompany affections of the eye and ear, and may cease upon the removal of the exciting cause. Also the convulsions of hysteria may be confused with true epilepsy.

In typical epilepsy

In typical epilepsy the onset is abrupt and usually accompanied by a peculiar sharp cry. The pupils are widely dilated, the face livid, and the involuntary passage of urine is usual. The duration of the attack is seldom more than a few minutes.

Hysterical patients rarely do themselves any injury, whereas an epileptic may injure himself in falling, or bite the tongue badly if not prevented. The movements of hysterical patients are more co-ordinated, the pupils never dilated, and the attack is always longer than in true epilepsy. How the hysterical attack differs

Attacks of epilepsy occurring in the night may go long unrecognized, but should a person complain frequently of soreness of the limbs on waking, headache, exhaustion, and possibly wetting of the bed, such attacks would be suggestive and should be watched for.

Very little can be done for a person who is having an epileptic seizure beyond loosening the clothing and placing a folded towel between the teeth to prevent biting of the tongue. This should be done at once, as the jaw soon closes tightly and it will then be too late to save the tongue from injury. If the person is in bed he should be rolled over to one side and the mattress protected from the involuntary passage of urine which may accompany the attack. Care of the epileptic patient

The younger the age at which epilepsy shows itself the greater the likelihood of serious impairment of the mental system, and the more frequent and severe the attacks the more speedy is the intellectual ruin liable to be. There are, however, notable exceptions to this general statement, for cases are on record of patients who, though suffering from a severe form of epilepsy, have for years been able to carry on an active life in business without any noticeable mental defect. Variation in the effects of epilepsy

As the tendency to epilepsy is transmissible from parent to child, there can be no question as to the moral right of epileptics to marriage, and it should never be considered. The epileptic no moral right to marry

INSANITY

In the cities where people are so closely crowded into homes, the care of the mentally diseased is very naturally given over to the institutions specially designed for them. In the country, however, there is more effort made to attempt home treatment, and occasionally, with the aid of a good physician and untiring nurses, this can be successfully done.

Two forms of insanity

The two forms of insanity, mania and melancholia, demand quite different care. A patient suffering from an acute attack of either form may be regarded as a hopeful case for complete recovery.

Mania

Mania is sometimes preceded by a period of depression varying in length of time from a few days to a few months before the true condition presents itself.

Condition of mind

The final state of mind is one of exaltation and the patient becomes so excited by his fantasies and delusions as to disregard his bodily wants. He becomes noisy, incoherent, often violent, so that it may be necessary to resort to mild restraint. A maniacal patient seldom commits suicide, but his homicidal tendencies are often marked. There is almost complete insomnia, the bowels are constipated, and the skin dry and hot. The appetite seems good, though it is usually difficult to make the patient attend enough to eat. Bodily activity is absolutely untiring, and the care of such patients is most exhausting.

Physical condition accompanying this

Inducing sleep by baths

A certain amount of sleep is sometimes induced by means of warm baths, particularly the prolonged warm bath at a temperature of 110°, which may be continued for an hour and a half or two hours if the patient is not too restive. Rest in bed is required so

far as it is possible to secure it, and massage or electricity may be ordered.

The hair, teeth, and mouth should receive careful attention, as in the case of any helpless patient. Nourishment is often confined to liquid overfeeding, and it may be necessary to resort to nasal feeding if the patient is unmanageable. Care and nourishment

If the patient becomes very violent and restraint is demanded, he should be sent at once to some good institution where his needs are perfectly understood and regarded. The period no longer exists when the care of the insane in institutions is conducted with cruel indifference. Modern methods of treatment aim at the recovery of the greatest possible number of cases. Restraint is now reserved for the extremely violent patients only, and when it becomes necessary to resort to it such means are used as will give the patient the least possible feeling of restraint. Modern methods in institutions

As the period of gradual improvement begins, every effort is made to divert the patient's mind and to give him employment which will interest him.

In melancholia the condition of the patient is quite different. He is seized with persistent and torturing depression of spirits, is constantly "hearing voices," which startle him, and are doubtless very real to his imagination. The skin is pallid and cold. There is continual headache and usually constipation and aversion to food. Melancholia different from mania

The feeding of patients suffering from this form of insanity must be even more carefully regulated than in cases of mania, as the digestion is often much impaired. The diet should be of nourishing liquids, eggs, and cereals, with some further variety as the physician may allow it. Overfeeding must be very cautiously carried out. Impairment of digestion accompanying melancholia

Careful guarding of the melancholia patient

Suicide is of frequent occurrence among patients suffering from melancholia, and it is never safe to leave one unguarded even for a moment, for while the back is turned the fatal deed may take place. Everything that could possibly be used as a means of taking life must be removed from his surroundings.

In extreme cases the "rest-cure" treatment is advised, and in the milder cases it is best that half a day should be spent in bed.

Do not discuss delusions with the patient

It is worse than useless to attempt to discuss the delusions of a patient with him during the acute stage of the disease, and the less attention that is paid to them the better for the patient in the end.

In case of forced feeding

The apathy of such patients is often extreme, and forced feeding may become a necessity because of the patient's determined desire to starve himself either from fear of poisoning or because he may consider himself unworthy to eat. The most humane method of feeding is through the nose by means of a soft rubber catheter, which is inserted through the nostril into the gullet for about a foot and a half. The food is then poured into the tube by means of a funnel to which it is attached.

Sympathy of the nurse with the patient

A person suffering from melancholia is not injured by sympathy with his physical or mental troubles, as in the case of hysteria, and a wise nurse can often gain much through sympathy, inspiring hope, and encouraging effort.

PART II

MOTHERHOOD

I

THE PHYSIOLOGY AND HYGIENE OF PREGNANCY

Indications of Pregnancy — Quickening — Dress — Need of Fresh Air — Exercise — Food — Bathing — Sleep and Rest — Heredity

THE ordinary woman understands too little of the physiology of the organs which come to their full development during pregnancy. In discussing the question of motherhood we can hardly expect to take an intelligent point of view unless we know not only the structure and use of these organs, but also their relation to other organs and parts of the body.

Intelligent knowledge of our subject necessary

The lower part of the abdomen, protected by its bony girdle, gets its name from the Greek word meaning basin. The womb, or uterus, is suspended in this cavity, and is kept in its position by ligaments. This suspension and control make the organ freely movable and also explain the reason for displacements and falling of the womb, which often follows childbirth when due care is not taken.

Suspension of the uterus

A full bladder tips the uterus backward, a full rectum throws it forward, and when the ligaments become weakened from any cause it is more difficult for it to resume and hold its correct position. This is the case directly after childbirth, and is one of the reasons why a long rest in bed is such a necessity, and why so many women who have not taken the proper care are broken down and old before their time.

Why a long rest is necessary after childbirth

The uterus itself is somewhat pear-shaped. The larger end points upward and the lower end, which

Shape of the uterus

is called the neck, extends down into the vagina, which is the external opening.

Function of the Fallopian tubes and ovaries

From the upper angle of the uterus, on either side, is found a canal called the Fallopian tube, through which the tiny eggs—the ova—pass on their way to the uterus. These germ cells live in the ovaries, which are small bodies lying below the Fallopian tubes, also on either side of the uterus. The connection between the two is through the fringe-like ends of the tubes, which grasp the ovaries at the time the ova are discharged.

These then are classed together as the generative organs, and their function or use is the development of the germ cell, or egg, into life, by its union with the corresponding germ cell, or semen, from the male parent.

Changes at puberty

At puberty the ovaries begin their work of discharging ova, once each month, into the cavity of the uterus. These ova, unimpregnated, pass away in the menstrual flow.

The nervous system at monthly sickness

The monthly sickness involves no adjustment of the pelvic organs, and no change of their position, as pregnancy does, yet we can realize how closely connected different parts of our bodies are by the wonderful mechanism of the nervous system. Nearly every one is conscious of mental depression or some nervous disturbance during the menstrual period, and many persons have definite physical accompaniments, like headache or enlargement of the glands in the breasts.

At the menopause

The same thing is true in more marked degree at the time of the "change of life," when these organs are losing their function. The menstruation becomes more and more irregular and finally ceases. Sometimes the flowing is so profuse as to be alarming, at such times, and sometimes decreases in quantity.

The constitutional disturbances are, however, the most trying, and as a rule the more vigorous and normal a woman has been, the less trying will this period be. The flashes of heat that sweep over the whole body from time to time are very characteristic, and the increase in the size of the abdomen is to be expected. If there is any chronic disease it is very liable to be exaggerated at this time, and there may be pain in the head and back, loss of appetite, or impaired digestion. Depression of spirits is very commonly felt at this time, and an unreasoning apprehension about the outcome of this trying period.

The constitutional disturbances

Rest, quiet, nourishing food, and considerate care are the chief helps, and before long the system adjusts itself to the altered demands. If the disorders are serious ones the advice of a physician should be asked.

Helpful treatment and care

Most of the symptoms manifested in both these cases being quite apart from any affection of the pelvic organs must lead us to see how unified our systems are, and from that to understand the reason for many of the minor ailments of pregnancy.

Evidences of unity of our systems

It is, however, the hygiene rather than the ills of pregnancy that we are considering.

We can not, of course, expect perfect physical conditions during this state, unless we have a perfect physical development, which is rare among the women of this generation, and in this land of little leisure, where equal demands are made on the nervous and the bodily strength.

Perfect physical development rare

Mr. Dooley says: "Th' diff'rence between Christyan Scientists an' doctors is that Christyan Scientists think they'se no such thing as disease, an' doctors that they ain't anny thing else."

We may run some risk in adopting the Christian

Child-bearing is a normal process

Science point of view in matters of general health, but in this question of pregnancy it is certainly the saner attitude. This is a matter which we can not emphasize too strongly. Child-bearing is a normal process. The organs of generation are fulfilling their natural use, and the nearer women approach the highest ideal of health, the more absolutely normal will childbirth become.

If a woman leads a normal life no radical change necessary

Nature has wonderfully accommodated these organs and the entire mechanism of the body to this function, and only asks to be given fair play. If a woman's life is normal, healthful, and wholesome, which ought to be one and the same thing, the fact that she is to bear a child need bring about no radical change. It should not be necessary for her to give up her daily occupations or to alter her mode of living.

The physiological changes do not interfere with ordinary duties and exercises

The housekeeping cares, even the actual work, and the ordinary exercise in the open air, the pleasures and duties that commonly form a part of the day, should keep their place. Other duties and pleasures will come in, to be sure, and the bodily changes during the nine months will bring the necessity of adapting her life in a measure to the new conditions, but most of these bodily or physiological changes are normal, and do not indicate disease.

Wholesome and joyous living adds to the child's inheritance

The more wholesomely and joyously a woman can live during this period, the more naturally will the changes and the adjustment to them come, and, furthermore, we must believe, the better inheritance will she give her children.

INDICATIONS OF PREGNANCY

The first indication of pregnancy is the cessation of the monthly flow. The blood which would have come away as menstrual discharge is used to supply

the ovum in its development. This is not what is called a positive sign, because with some women of exceedingly nervous temperament an emotional excitement, or unusual physical weariness, or slight illness temporarily interferes with the regularity of the monthly sickness. Interruption may also be caused by more serious disease. In rare cases the flow continues more or less regularly throughout the entire course of pregnancy. But ordinarily its cessation may be regarded as an indication that impregnation has taken place.

Cessation of menses the first indication

The glands which are to secrete the milk become enlarged, and this growth is accompanied by sensations of weight and tingling or pricking in the breasts. The areola or circle about the nipple gradually becomes darker in color, and later a secondary disk appears surrounding the first. Milk can sometimes be pressed from the breasts some weeks before delivery, and in the case of a woman who has never borne a child this is considered a valuable sign.

Changes in the milk glands and the breast

Nausea is a very usual trouble at this time, though it is not universal. It occurs generally on rising or immediately after the first meal, and may or may not be accompanied by vomiting. It usually begins about the fourth week, and may last two months or longer. Occasionally it is so persistent that medical advice and treatment are necessary.

The morning sickness

The uterus sinks a little in the pelvic cavity during the early weeks, and draws with it the bladder, which in turn pulls the umbilicus inward. This causes the navel, and in fact the abdomen generally, to appear unusually flat.

Changes in shape of abdomen

By the third month the uterus has risen enough to be felt if the hand is placed on the lower part of the abdomen just above the pubic bone. From this time

Gradual enlargement of the uterus

on the enlargement increases at the rate of one and one-half to two inches every four weeks, until during the last month the uterus almost reaches the cartilage at the end of the breast-bone.

Beatings of the fetal heart

At about the middle of pregnancy a physician can determine by the help of the stethoscope the beating of the child's heart. This establishes beyond a doubt the existence of pregnancy, though failure to hear the sounds does not negative the diagnosis. The heart of the child in the uterus is quite independent of the mother's, so the two can never be confused unless the frequency of the mother's is increased by disease. The fetal heart beats from 130 to 150 times a minute. As a rule the larger the child the slower the heart action. Boys are usually larger than girls, and so

False reasoning regarding the beating of the fetal heart

the conclusion has been drawn that the sex can be determined by the rapidity of the heart beat. This reasoning is not at all reliable, however, and the same may be said of most of the attempts which are made from time to time to determine sex before birth. It is quite as well to disregard entirely such methods, for they succeed only often enough to convince the credulous that they are infallible.

QUICKENING

The quickening of the child

This is the term used to express the activity of the child in the uterus. It was formerly supposed that until those movements were felt by the mother there was no life, but of course conception itself, the union of the two germ cells, depends upon the living principle within them.

Its effect upon the mother

Quickening is first felt about the middle of pregnancy. It is often recognized by the mother before the examiner can detect it, and it may at first give her very unpleasant sensations, such as nausea or faint-

ness. Later in the course of pregnancy the activity is often so marked that the examining physician can easily see as well as feel them, and the mother sometimes suffers pain from the violence of the movements.

Absence of this sensation does not prove that pregnancy does not exist. The child may be dead, or it may be quiet during the entire term. If there has been activity and it ceases, especially if the mother has had an attack of illness, a physician suspects the death of the fetus.

Significance of absence of quickening

Toward the end of pregnancy, however, the growth of the child may, and usually does, prevent freedom of movement, so that a woman need feel no alarm if she is conscious of little or no quickening during the last two months—unless there has been sickness of severity enough to warrant the death of the child in the uterus.

There are diseases which present symptoms so nearly like those of pregnancy that even physicians are sometimes misled. In intensely nervous or hysterical women many of the signs are so closely simulated that they deceive every one. The cessation of the menses, the sympathetic stomach disturbance, and even the abdominal enlargement are present.

False signs of pregnancy

If suspicion arises in the mind of the physician, he will probably administer ether, and make an examination while the patient is under its influence. The muscles are then relaxed, and the true condition can be ascertained. There may be a distention of the uterus or of the abdominal cavity, from gas or fluid, in which case most of the reliable attendant signs are lacking.

Examination by physician

After long experiences, such as a woman gains by repeated pregnancies, the shape of the abdomen is a very significant sign, and its characteris-

Shape of the abdomen characteristic

tics are such that there is generally little difficulty in diagnosis.

The outlines of the pregnant uterus are very smooth, and its shape is even. There is a peculiar elongation in the enlargement of the abdomen, and on pressure it seems very stiff and elastic. Generally the uterus can be felt to contract, especially if a cold hand is laid over it.

Positive unmistakable signs not manifest the first weeks

It is hardly too much to say that in doubtful cases even a very clever physician can rarely make an unqualified statement about the existence of pregnancy before the middle of the period. Then rarely is there hesitation, because the probability of pregnancy as the result of the marriage union of a normal, healthy man and woman is so great, but mistakes in diagnosis are so severely criticised that it seems only fair to call attention to the fact that the positive, unmistakable signs are not manifest during the first weeks.

DRESS

Corsets must be discarded and skirts hung from the shoulders

For the first two months in a normal pregnancy, few changes need be made. After this, the clothing will begin to feel tight, and it must be loosened. Corsets should be discarded, in order to remove pressure, both from the breasts and the uterus, which is steadily mounting in the abdominal cavity. The corset waist may be substituted to give the accustomed warmth, and to serve as a support for the skirts, which should be fastened to it, or suspended from the shoulders. Princess gowns, or those made with jackets, having full vests, are very practicable, as they emphasize the size of the figure less, besides being more comfortable than the ordinary costume.

Now, more than ever, one should be protected from the cold, and yet the clothing should be light in weight.

High shoes should be worn, to give extra support to the ankles, and the stockings should be held up by straps at the side, never by round elastics, which, if effective, constrict the legs, and interfere with the circulation, often causing varicose veins.

Warm, light, loose clothing

NEED OF FRESH AIR

The essential fact to bear in mind is that the body is doing work for two instead of one. As the blood flows through the arteries, carrying nourishment to the various parts, it loses its life-giving properties, and it must take its way back through the veins to the lungs, to be re-vitalized by the pure air. This work of the circulation in taking oxygen to the tissues is as important a part of respiration as the familiar act whereby the lungs alternately inhale air and expel it.

The mother's body doing work and breathing for two

For the little new life, which has its being through the parent, this internal respiration constitutes the entire process, for it has no communication with the outside world. This means that the rooms should be well ventilated, so that with each breath the lungs may be filled with fresh air.

Imperative need of fresh air

Inside chambers, having no windows opening out-of-doors, are never suitable for sleeping rooms, and now when every atom of vital power needs to be saved and used they are especially to be condemned. Remember that a fire, gas or a lamp will use up oxygen, so that more ventilation is needed when they are burning.

Every atom of vital power needs to be saved

EXERCISE

The exercise in the open is equally important if it serves only to fill the lungs a few times with fresh air. Walking is a safe exercise, and may be followed up during the entire term. Driving, unless it must be

How muscular exercise has extra value

over very rough roads, is equally beneficial. It must be remembered that absolute rest is not a wise general prescription for the pregnant woman. She needs occupation to keep her healthy minded and happy, and labor is usually less painful when the muscles have been kept in good working order.

The open air a safeguard

Sometimes trifling discomfort, particularly in a young woman, makes her fail to realize this, and she is inclined to lie down when physically she is quite able to take moderate exercise. The open air, with its change of scene and diversion of the mind, is her safeguard, for if she makes an invalid of herself, and keeps her mind full of unpleasant possibilities, the invalidism will tend to become a fact, and the nervous apprehension will result in hysteria.

FOOD

Nourishing and sufficient food to meet the strain upon the body

The same fact—that double duty is being laid upon the system—must also be borne in mind when we take up the question of diet. If the ordinary food served in the family is carefully chosen, for its nutritive value, and properly prepared, there is no reason why any deviation from it should be made. The tissues are under tremendous strain with repairs of the old and construction of the new. Since our food is the source of our bodily heat and energy, and since by means of it our bodies are built up and maintained in health, we can see that the stomach must now be given proper and sufficient material for its work.

What proper food is at this time

Proper material means wholesome, digestible food. It does not mean an excessive amount of stimulant like coffee or tea, which gives an artificial vigor, and lessens the desire for food. Neither does it stand for a specified diet of any one kind. The system needs now

more than ever the variety in food that will bring to each part the nourishment it especially requires.

The claim that the use of a strictly vegetable diet will assure an easy labor is only a theoretical supposition, based on the idea that the bones of the child would then be less well developed. If this were true, it would seem a more far-seeing plan to choose food which would keep the mother robust and able to endure the extra pain of bringing into the world a well-nourished, sturdy child.

The fallacy in reasoning about a vegetable diet

Rich, fatty foods, fried dishes and pastry or sweets in excess are to be avoided, not only during pregnancy, but at all times. We all recognize that these things are bad for children, and in the majority of households, where the children eat with their parents, it is well-nigh impossible to restrict their fare. The simpler method is to choose healthful, digestible food, and to exclude altogether the forbidden fruits.

Avoid fried dishes, pastry, sweets in excess

During the course of pregnancy, there are frequently abnormal longings for some one kind of food. It is often perfectly possible and legitimate to indulge this appetite. Sometimes it may mean that the system needs the acid of certain fruit, or other material which the desired food contains. It will be found, however, that gratification is not always essential, and it is not wise to let the longing hold too important a place, for the more constantly it is kept before the mind, the more fixed it becomes. When the appetite is diseased and demands such things as slate pencils, chalk, or starch, the physician can generally correct it with drugs.

Gratifying abnormal longings of appetite

It seems to be necessary at all times, in season and out of season, to urge the free use of water. This applies in health and in disease, to the pregnant woman no more than to every one. Water is cleansing inside

The benefits from free use of water

as well as outside. It helps sweep away the waste matter which is disposed of by the kidneys. It regulates the body-heat by its effect on the sweat glands, and it is a great aid in correcting constipation, one of the special ills of pregnancy.

BATHING

Repetition of reasons for bathing

The reasons for frequent bathing have already been given in the chapters on Home Nursing, but I should like to review them here. We are constantly shedding tiny scales of scarf-skin. The sweat glands are also continually pouring out their fluid, the perspiration, in greater or less abundance, and the oil glands are all the time adding their secretion.

Stoppage of the pores of the skin

These pores serve an important purpose in keeping our bodies in a state of health. If this mixture of oil, perspiration, and scales of skin is allowed to accumulate the mouths of the pores will be more or less stopped and their work will be interrupted.

The pores in winter and in summer

The oil-glands keep the skin smooth and flexible. Through the sweat glands the heat of the body is regulated. In winter, when extra heat is needed in the body to resist the cold, the openings of these pores are narrowed, and very little perspiration is secreted. In warm weather, on the contrary, perspiration is poured out in quantities, and the heat of the body is reduced. This statement in itself proves the importance of giving these glands free play, which cleanliness certainly will do.

The tepid bath safest

The tepid bath is the safest for the pregnant woman. The cold plunge or shower is liable to prove too great a shock to a system which is carrying a double load, and the healthful reaction is less likely to follow. A hot bath may have a tendency to stimulate the uterus before it is time and may bring on miscarriage.

SLEEP AND REST

If the simple, healthful life is an accomplished fact, and not a pleasant theory, the question of sleep will generally take care of itself. The exercise in the open air gives one the desire for sleep; the bath, if taken at night, quiets the nerves and relaxes the muscles, and insomnia is rarely a serious difficulty. Various devices to induce sleep are found in a preceding chapter.

The importance of rest is not at all appreciated by the American woman. She regards Nature as an impertinent mentor if Nature ventures to step in and make demands in return for the many burdens that are laid upon her. The importance of rest to the expectant mother

Our bodies always have a right to consideration, but never more than when the well-being of another life is dependent upon them. Physical and mental health are all-important to the expectant mother, and she should take her rest as conscientiously as she does her work.

Even if sleep during the day is impossible, relaxation with the clothing loosened will refresh her and should have its plan in the routine of each day. The nights will be more restful if the days are not overcrowded, and an hour in a quiet room, with the muscles resting, and the mind unoccupied as far as may be, will do much toward keeping the nine months a normal period. The quiet hour

We are too much afraid of resting. We feel that the lagging nerves must be spurred on, and that it is weak yielding if we obey their warning, and stop when they call. Consequently we do apply artificial stimulants in the way of excitement and the strength of our wills, and we do not feel conscious of failing nerve power until after the strain is off. Then Falsity of artificial stimulation

we awake to the fact that our reserve is gone, and we find ourselves much less useful members of society, and much less happy women than we might have been.

A rule of living for the pregnant woman

The pregnant woman should keep early hours, occupy a bed by herself and sleep eight or nine hours out of the twenty-four.

"The gospel of relaxation"

There is "power through repose," and relaxation is a safeguard that not only brings more complete rest in our unoccupied moments, but will lessen pain or discomfort to a remarkable degree. Pain gains its hold through our tense rigid muscles and nerves. The non-resistant is a more elusive foe than the aggressive, and in health or disease, under normal or abnormal conditions, the "gospel of relaxation" is the gospel of healthful living.

HEREDITY

About ante-natal influences

The question comes up in the mind of every expectant mother as to how much she can influence the physical and moral well-being of her child before birth. Sentimentalists tell her that she can impress the growing life within her through the influence of her own mind; that she can "mark" the child with beauty, with love for music, with a cheerful or a despondent disposition; that she can give him a bent toward a given end by turning her energies in that direction during his fetal life.

Birth-marks

As a matter of fact, the deformities and birthmarks that sometimes disfigure a baby result from some exciting circumstance which took place before the child was fully formed in the uterus. After this, the development of the child has proceeded so far that no external event except actual violence can affect the physical make-up.

The mechanism of the nervous system is more com-

plex and more delicate, but it seems hardly possible that mental processes of the mother should be able to react at all on the nerve centres of the child.

The mother's general well-being tells upon the child

The essential fact is that her general well-being does tell directly on the child through its influence on the quality of the blood supply upon which his development depends.

Ills and emotions affect the supply of milk to the child

This is true before birth, when his life is literally a part of hers, but is almost as important a fact, when the fact that she furnishes his food supply is their only vital connection. Even then we find the nervous and physical condition of the mother reflecting directly upon him, as her bodily ills or emotional excitement affect the secretion of milk.

Thus she helps to the inheritance of a healthy body

All this goes to show that she can help in giving him the inheritance of a healthy body which will increase his chances for full normal mental development, and it is to this end that she may best devote her energies.

Biologists have investigated, discussed, and disagreed upon the subject of heredity, and many theories that were held true in years gone by are now believed to be without foundation.

Direct transmission of disease from mother to child rare

In spite of the differences of opinion on many technical points the general supposition at the present time on the subject of inheritance seems to be that there is in most cases no direct transmission of disease. This means that the child of a consumptive parent, for instance, is not necessarily born a consumptive. It does not mean, however, that he is no more liable to develop tuberculosis. Disease is not transmitted, but the weakness of a part, with a tendency to become diseased, may be.

Heredity, then, is a question of inherited tendencies, rather than of definite characteristics, and may be over-

Heredity is inherited tendencies

balanced by hygienic surroundings and wholesome living. This puts more responsibility rather than less upon the shoulders of the parent, both as regards bringing children into the world with the handicap of inherited weakness and as to their care after birth.

The birthright of every American child

If the first responsibility is assumed, the second should not be shirked. Especial advantages in the way of proper exercise in pure air, good food, and watchful care are demanded, and no effort should be spared to give to a child its proper birthright—the chance of development into normal, healthy, efficient manhood or womanhood.

II

AILMENTS OF PREGNANCY

Nausea—Constipation—Increased Salivation—Varicose Veins and Hemorrhoids—Decay of Teeth—Palpitation—Sciatica—Pruritus—Irritation of Bladder—Abdominal Bandage—The Physician—Midwives—Advice of Friends—Receipts for Special Diet

I HAVE asked you to take the attitude of regarding pregnancy as a normal state, indicating the development of organs and the fulfilment of the purpose for which they were largely made.* Now in seeming contradiction to this, I suggest in the heading of the chapter that there are ills which we must consider.

If women had lived in accord with Nature's laws

If all women had always lived in accordance with Nature's laws, if they had never worn clothing that changed the shape of their bodies, if their food had always been wholesome, so that the digestion was unimpaired, and if they had plenty of vigorous out-of-door exercise, so that all the muscles were supple and well developed, probably child-bearing would be an incident rather than an end in their lives, and children would be given a fairer start and less of a handicap in inherited weakness.

Since, however, it is not perfectly normal womanhood which we have to consider, we shall find certain ailments which are almost universal accompaniments of pregnancy. These ills, the nausea, the discomfort of increasing size, and the intestinal difficulties, seem

* Scientists now believe that the ovaries play an important part in the organism, in helping to establish and maintain vital force, quite aside from their function of reproduction.

sometimes like unnecessary burdens, till we realize what a wholesale adjustment to new conditions there is throughout our bodies, and see how wonderfully Nature has planned.

Uterine growth during pregnancy

The normal size of the uterus is three inches long by one and a half wide. Its weight is about one ounce. In nine months these dimensions change to twelve inches in length by nine inches wide, and the weight to two pounds, not including the contents. This increase means growth, we must remember, not a mere stretching of elastic tissue, so that the contents of the uterus may be accommodated, as is shown by the fact that the walls are thicker, rather than thinner, toward the end of pregnancy.

Ailments this growth induces

As the position of this organ changes, the other organs in the abdomen must adjust themselves. The uterus presses backward against the rectum, and constipation results; it pushes forward against the bladder, and there are difficulties in the retention or the passing of the urine; as it rises in the abdominal cavity, the stomach is affected and we have the nausea of "morning sickness," while later the heart is forced to accommodate itself to the new conditions, and retaliates by palpitation.

Freeing the mind from unnecessary alarm

This is the rational point of view, and if the woman who is to become a mother keeps these physiological changes in mind, she will understand better many of the ills attendant on pregnancy, and will be saved unnecessary alarm. We can very well balance up our physical ills in two columns of cause and effect, and this period is no exception to the general rule.

We have already remarked that nausea, constipation, irritation of the bladder and palpitation follow in natural sequence the increasing size of the uterus.

NAUSEA

The nausea usually passes away in a short time. If it persists, various experiments in diet must be tried. Often liquid food and rest in bed will entirely correct the trouble. It is usually the early meal which the stomach refuses to retain, and sometimes if this meal is prepared and served in an unusual way it will be digested.

If nausea persists

Prepare it entirely out of the sight of the patient, and serve it very early in the morning, before it is time for her to get up. After she has eaten it, immediately darken the room, and leave her to sleep again. If extreme care in diet fails to overcome the nausea, it may be worth the attempt to give the patient the first solid food she craves. Sometimes a diet that seems entirely unsuitable may check nausea, which appears almost to have become a habit. Ices and ice-cream may be given, and the latter, especially if made with a custard, furnishes considerable nourishment. Pop-corn sometimes can be retained and will help correct the trouble. A mustard plaster over the stomach, an ice-bag at the back of the head, or bits of ice taken by the mouth, are other devices that may be tried.

Serving the breakfast very early

Ices and other devices

An entire change of surroundings will often effect a sudden and complete cure, and it is advisable if the nausea does not readily yield to the ordinary treatment to go away from home and one's immediate family, to make an absolute break in the accustomed life.

Break in the accustomed life

As the stomach becomes used to the increased pressure, and to the extra demands made on its blood supply, it generally resumes its normal function. If, however, none of these devices is successful, and the strength seems to be failing, the patient can be nourished for weeks by nutrient enemata.

CONSTIPATION

Correction of constipation by diet

Constipation is liable to be manifest throughout the nine months. Much can be done to correct it by means of diet and exercise, and this method should be used before drugs are resorted to. Fruits, cereals, coarse bread, like graham or rye, help the action of the bowels, because of the amount of fibre, which, not being acted upon by the digestive juices, serves as a slight irritant to the intestinal wall.

If one will stop to consider, one can easily find a varied dietary which tends to relieve constipation. All the cereals (except rice), graham, rye, corn, and brown bread, fresh meats and fish, vegetables and fruits of all kinds, certainly offer a choice of which one need not tire, while toast, cooked milk, soda crackers, tea, and spirituous liquors, sweets, nuts, cheese, and rice are distinctly constipating and should be avoided.

What to avoid

Free drinking of water

Add to all this, and above all this, the free use of drinking water. If water is distasteful, the increase of salt in the food will give a desire for it. It should be added that hard water is extremely constipating. Boiling it will remove in part at least the substances which make it hard, and this should always be done if soft water is not available. It may be brought to boil, cooled, then put in bottles and chilled. Long boiling gives it a disagreeable taste.

Exercise

Exercise helps in all normal functions, and a gentle circular rubbing of the abdomen, with an increase of pressure over the left side, sometimes stimulates intestinal activity.

If the trouble is obstinate and persistent, drugs or injections should be used, for it is of the utmost importance that the system be kept in order and the wastes of the body be removed.

INCREASED SALIVATION

A patient is sometimes troubled with an excessive secretion of saliva, which may continue for a few weeks, but which sometimes persists throughout pregnancy. It is not a dangerous ailment, but may be a troublesome one, especially when the glands become tender and the gums are swollen and recede from the teeth. Astringent mouth washes, such as hamamelis or tannin, generally relieve somewhat, and if the secretion of the intestinal tract is increased by saline laxatives (Rochelle or Epsom salts) the excessive salivation may be checked.

Suggestions for relief in mouth washes and laxatives

VARICOSE VEINS AND HEMORRHOIDS, OR PILES

Both these conditions are caused by undue pressure upon the large veins, causing dilation of the branches below them.

In the condition known as varicose veins those vessels in the legs become much swollen, as the word varicose indicates, and their course becomes tortuous. This trouble is in itself very painful, and may lead to a serious difficulty if not remedied. This difficulty is rupture of the vein and consequent hemorrhage.

Varicose veins and their care

To guard against this possibility a bandage or elastic stocking should be constantly worn if the veins appear prominent. The bandage may be of flannel, cut on the bias, and should be evenly and closely applied, beginning at the ankle.

Bandaging the leg

Very gentle rubbing, always away from the extremities, and toward the heart, sometimes relieves the pain or feeling of pressure, and if the skin feels dry, or as if tightly stretched, oil may be used for this rubbing. This is equally useful treatment for the abdomen as the tension becomes great.

The relief of rubbing

Preparatory treatment of the breasts

It is a very good plan to give the breasts also a little preparatory treatment, consisting either of alcohol bathing, which toughens the skin and makes it less sensitive when the nursing begins, or of a gentle rubbing with oil, always toward the nipple, which should be pulled out with the fingers if it is not prominent. A baby will often refuse to nurse if the breasts have very small or sunken nipples, and this treatment carried on for a few weeks before delivery will put the breasts in good condition, make the skin more flexible and less liable to chap, and will save much discomfort.

Methods where the massage is not effective

It is often the pressure of tight corsets which has made the nipple flat, and if the massage treatment is not effective it can be drawn out with a breast pump or similar apparatus. Take a large-mouthed bottle, fill it with boiling water, then empty it and quickly invert over the nipple. As the air in the bottle cools a partial vacuum will be formed, and will cause the nipple to be drawn out. Another still more simple method is to place the bowl of an ordinary clay pipe over the nipple and, with the stem between the lips, draw out the air. Very little effort exhausts the air and pulls the nipple well out.

Valuable results to baby and mother

If this practice is regularly observed, the nipples can be brought into much better condition before the baby is born, and the amount of worry and work that is saved is not appreciated until one has suffered the annoyance of having a hungry baby entirely unable to take the breast.

The cause of hemorrhoids

Hemorrhoids or piles are caused also by the congested condition of the veins. Those vessels in and about the rectum become swollen, and small tumors appear, which may protrude on the outside or may be entirely internal. Constipation is often the cause,

though sometimes the trouble is present when the bowels are in normal condition.

Rest in bed generally corrects the congestion. It may, however, be persistent, when it is intensely painful, and is often accompanied by a nervousness which can not fail to react on the entire system. Compresses wet in witch-hazel, diluted one-third with water, either cold or warm, give relief, and if the hemorrhoids are internal an injection of about a teacup of this witch-hazel solution retained in the bowel is often helpful. An ointment made of witch-hazel tends to contract these small tumors and thus to relieve the pressure on the nerves.

Methods of gaining relief

Diarrhœa and constipation have an equally bad effect upon the condition of pregnancy, and an especial effort should be made to keep the bowels well regulated.

DECAY OF TEETH

That this trouble should accompany childbirth is not surprising when one considers what demands are made upon the vitality of the mother.

It seems to be universally true that dental difficulties follow the pregnant state, and often the nervous condition of the woman is such that repairing treatment is impossible. Such temporary work as can be done is, of course, advisable, to save pain, and to preserve the teeth.

Demand upon the system leads to difficulties with the teeth

Otherwise Friar's Balsam, Compound Tincture of Benzoin, often gives relief. Iodine may help, and in cases of neuralgia hot dry applications are soothing. It may also be comforting to remember that these difficulties, like the unpleasant moth patches or pigmentation of the skin, pass away with the birth of the child.

Reliefs

PALPITATION

Cause of the palpitation

This is more often present during the later months, when the uterus has risen so high in the abdominal cavity that by its pressure it interferes with the action of the heart. Very little can be done to relieve this condition, but it is usually of short duration.

Coughing and labored breathing

Coughing and labored breathing during pregnancy also need occasion no alarm. In the early months they are doubtless nervous or sympathetic troubles, and later they are due to the pressure of the enlarged uterus.

SCIATICA

Causes of sciatica

Pain in the sciatic vein which runs down the under side of the leg from the thigh is sometimes caused by pressure due to constipation or to a displacement of the uterus. If brought about by the former, laxatives and thorough rectal irrigations containing oil or glycerine, to empty the bowel completely, is the treatment suggested. Constipation should be especially guarded against.

PRURITUS

The cause of the itching and its relief

A general itching of the skin, with no sign of eruption, is a nervous disorder which is very trying, and may be a great strain on the system. It is aggravated at the periods when the menses would ordinarily occur. Baths in water containing baking soda relieve the itching, particularly if followed by a thorough rubbing with vaseline. Bismuth, zinc oxide, or starch may be used to powder the skin, and linseed oil or lime-water may be applied on a cloth. It is a condition which is difficult to cure, but which usually ends with the birth of the child.

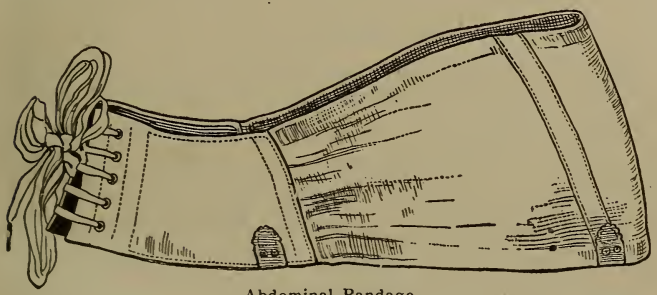
IRRITATION OF THE BLADDER

Irritation of the bladder is usually caused by pressure of the enlarging womb during the first months of pregnancy. Mucilaginous drinks, such as flax-seed tea or slippery elm, will sometimes relieve the pain, and keeping the bowels open assists by freeing the bladder from additional pressure.

Remedial suggestions

ABDOMINAL BANDAGE

Sometimes the abdomen is so large that moving about is difficult, and there may be considerable pain felt on walking. A fitted bandage can be used in such



Abdominal Bandage

cases, and may give great relief. Regular abdominal bandages can be purchased at shops where surgical or hospital supplies are kept, but they are very expensive, and it is possible to cut and fit them at home, using one of the paper patterns. Unbleached muslin, lasting, or twilled cotton are suitable materials, and the bandage should be closely fitted so that it will actually support the dependent abdomen.

The use of abdominal bandage

These, then, are some of the minor ills that may complicate the state of child-bearing. They may be extremely uncomfortable and they may restrict one's

method of living, and clamor till they draw attention to themselves, and divert one from the desired state of healthy-mindedness. But after all these ailments are temporary, none of them lasting beyond the nine months, and most of them merely incidental during that time. None of them need occasion alarm, if ordinary care is taken, as in the case of the varicose veins to bandage the legs, or in constipation to correct the difficulty and keep the system in order.

Minor ills of pregnancy temporary and not alarming if ordinary care is taken

THE PHYSICIAN

When the expectant mother should choose her physician

There are symptoms, however, which need to be regarded, which if noticed in time and reported to a good physician may be relieved, but which may result in alarming disease if allowed to run their course. It is on this account that I should advise the young mother to choose her physician and put herself under his care during the first months of her pregnancy.

Symptoms for special treatment

Certain symptoms, such as persistent headache, spots before the eyes, scanty, high-colored urine, a dropsical appearance, or flowing before term, should always be reported as soon as they are noticed, because they may be indications for special treatment.

The urine as a guide

The urine is a valuable guide to the physician in diagnosis, and frequent examinations of it are advisable. Three pints in the twenty-four hours is the normal amount, and often if the quantity diminishes it is only because the patient is not taking enough fluid, and it can be brought up by increasing the daily supply of water.

Its preparation for examination

It is perfectly feasible for a woman to have a little oversight in regard to the quantity passed, and its appearance, and if she finds either out of the normal she should at once send a specimen to her physician for examination. A pint graduate-glass can be

used for a measure, and the amounts recorded, or a large bottle or jar can be substituted. The pint or half-pint measure can be indicated on the bottle by strips of cloth, paper, or adhesive plaster pasted on.

The receptacle for the urine should be washed and scalded each day. In sending a specimen to the doctor special care should be taken to wash the bottle and the cork very thoroughly, as impurities added in this way may interfere with the result of his examination. A physician is then capable of judging whether the condition is a serious one, and he can relieve the minds of his patient and of her friends, besides giving the essential remedies.

Sanitary care necessary

MIDWIVES

I have spoken of engaging a physician, and have not considered any alternative. There ought to be none, and yet midwives do a flourishing business, in spite of the increase of knowledge upon the subject of proper care in confinement. If we could trace back the histories of the cases of blood-poisoning following childbirth that are brought to our hospitals—which, in fact, has been done—we should find a surprising proportion of them laid at the door of the midwife. A little knowledge is a dangerous thing in the practice of medicine no less than in philosophy, and this is where the danger lies.

The dangerous little knowledge of midwives

Childbirth is so nearly a normal process that many women pass through the ordeal safely with assistance only in regard to separating the child from the after-birth. The trained and licensed midwives do understand fairly well the after-care of mother and child, but most of them are entirely unequal to any emergencies, and so suspicious of any lack of confidence in their ability that they often will not confess

And their consequent inability to meet emergencies

lack of knowledge till the trouble has become complicated.

Principles of surgical cleanliness disregarded

Any medical student who has served his term in a hospital understands the principles of absolute surgical cleanliness and the importance of carrying them out in confinement cases. But with many midwives these principles are unappreciated or disregarded, and while they may be clear-headed, capable, and vigorous in normal cases, their lack of technical knowledge makes their presence in the lying-in chamber a menace rather than a safeguard. This is probably truer of the older women of this class than of the younger ones, who have much more thorough training, but it is impossible that they should have the technical skill of the reliable physician.

ADVICE OF FRIENDS

Do not consult friends or neighbors

If it is wise to consult a physician it is equally advisable not to consult one's friends and neighbors. So many well-meaning and kindly women have a morbid love for the abnormal that they treasure all the grewsome tales they have heard and retell them—in even more grewsome detail—for the benefit of the young expectant mother, who may be puzzled by perfectly natural symptoms.

A touching story

I was called the other day to see a small boy who had pneumonia. The mother met me at the door, in tears, and as I went into the room she said sadly, "I am afraid Donald is leaving me." One or two neighbors were standing about in the little room, looking their sympathy.

I went to the bed where the child was lying. His pulse was full, regular, and not as fast as the day before, and the little hand I held in mine was moist and cool. His eyes were closed, not half-opened as

sick children's often are, and his breathing was deep and easy. It was returning health, not death, that had quieted his delirium and had put him to sleep.

It was returning health, not death

His mother told me afterward that she had not been so alarmed when he became quieter till a friend had come in and, on looking at him, had shaken her head and said, "This is the end," and had gone out without more words. It was absolutely unnecessary alarm, and, even if his condition had been serious, nothing would have been gained. The mother, who needed all her strength and alertness, was undone and helpless.

This is somewhat far afield from our subject, except to show that the judgment of the untrained person may better be withheld, especially when it finds no helpful expression.

Cheer and hopefulness take us out of many a slough of despond, and the prospective mother, particularly at the birth of the first child, should have a double portion. It is a strange road that she treads, and there are dark places where she needs the friendly hand and reassuring word to give her courage.

Cheer and hopefulness for the prospective mother

SPECIAL RECEIPTS—IN NAUSEA

Koumiss

This is one of the most digestible forms of milk, and can often be retained by a very delicate stomach when other foods cause nausea.

Dissolve one-third of a yeastcake in lukewarm water. Stir the water into one quart of milk of the same temperature. Add one tablespoon of sugar and fill bottles within one and one-half inches from the top. Cork and invert the bottles, and let them stand at a temperature of 80° F. for six hours. The corks should be tied securely unless bottles with

patent stoppers are used. Chill and serve on the following day.

Peptonized milk

If the digestion is impaired it may be well to give partially predigested milk, which will relieve the stomach of a part of its work.

It must be understood that the digestive ferment used in such a preparation continues its action as long as it is kept at a favorable temperature. Consequently the milk must be taken very shortly after it is made, or must be kept very cold, when the process is retarded; or it must be quickly raised to the boiling point, which entirely destroys the activity of the ferment.

Put two tablespoons of cold water in a goblet or glass; dissolve in this the powder contained in one of the Fairchild peptonizing tubes, then add fresh cold milk to fill the glass; stir the mixture thoroughly, and drink at once.

Warm milk may be used instead of cold, when the process of digestion will be carried a little further.

If the milk with the powder is brought rapidly to the boiling point, further digestion will be checked and the sweetness will be retained. The difficulty is that the flavor of the milk may change unless this is very carefully prepared. The bitter taste which develops does not indicate any harmful change in the milk, but it may be less pleasant to drink.

Junket

To two cups of blood-warm milk add one dessertspoon of liquid rennet. This should stand in a moderately cool place, until it sets in a curd, when it may be chilled. It may be varied by the addition of sugar, and flavoring in the form of coffee, cocoa, or wine. It may be served with or without cream.

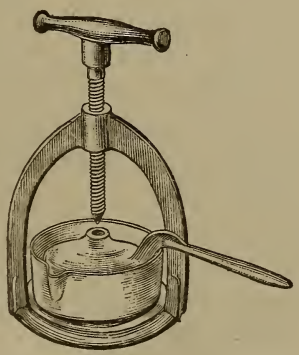
Albumen water

Half a pint of cool water and the white of an egg are shaken thoroughly in a sealed jar. A little salt, sugar, or lemon-juice may be added to make the dish palatable.

Broiled beef essence

Cut half a pound of steak about three-quarters of an inch thick from the top of the round. Wipe the meat, remove the fat, and sear over hot coals, in a pan or in boiling water.

After continuing this cooking for about three minutes, cut the meat in small pieces and gash two or three times on each side. The juice may be pressed out either with a lemon-squeezer or with a



A Meat Press

machine especially made for the purpose. Season with salt and serve cold. If it is reheated the juice is very liable to coagulate.

Scraped beef sandwiches

Cut in one-third inch strips a small piece of steak from the top of the round. Scrape, season with salt and pepper, and spread over thin bread-and-butter sandwiches. Remove the crusts and cut in triangles or fancy shapes.

SPECIAL RECEIPTS—IN DIARRHŒA

Arrowroot gruel

Mix two teaspoons of Bermuda arrowroot in cold water, to form a thin paste. Add to one cup of boiling water, and cook ten minutes. Season with salt and add cream if desired.

The addition of half a stick of cinnamon gives a little more character to an insipid gruel, and the spice tends to restrain the action of the bowels.

A little caution should be used in giving an excess of starches in liquid form, because they do not remain in the mouth long enough to come into contact with the digestive fluid, and so are passed along to the intestines, giving them an extra amount of work. If this caution is kept in mind and the liquids are held in the mouth for a moment and mixed with the saliva, their digestion will at least begin.

Cracker gruel

Scald two cups of milk and add one Boston cracker rolled and sifted. Cook in a double-boiler for five minutes. Salt to taste.

Toast water

Cut bread in thin slices, put in a pan and dry thoroughly in a slow oven. Break in pieces, add an equal portion of boiling water and let it stand for one hour. Strain and season.

Clam-juice

Wash thoroughly a dozen and a half of clams. Cook in a covered kettle with three tablespoons of water, till the shells open. Remove the clams and strain the liquor through a double cheesecloth.

SPECIAL RECEIPTS—IN CONSTIPATION

The coarse breads, as I have said, are especially beneficial in constipation. Bran biscuits recommend themselves on this account, though they are not a particularly palatable article of food. The graham

biscuits depend solely upon the heat for their lightness, and should be simply two crusts if they are properly made.

Bran biscuits

Mix together one pint of bran, half a pint of flour, and one even teaspoon of baking soda. Add this to half a pint of milk and six tablespoons of molasses. Bake in gem-pans.

Graham biscuits

Two cups each of graham flour and cold water. Mix well, add half a teaspoon of salt, and drop into *hot* buttered gem-pans. Bake in a very hot oven.

III

PREPARATIONS FOR CONFINEMENT

Preparations for the Mother—Baby's Wardrobe—List of Clothes—The Nursery Furnishings

PREPARATIONS FOR THE MOTHER

IT IS well to begin the preparation of necessary things early, because their making often seems more of a burden later, when the increased weight and size make it difficult to move about.

Cleanliness and comfort possible during and after delivery

It is perfectly possible to keep the mother and all her surroundings clean and comfortable during and after delivery, and it is equally possible to make that period one of discomfort and uncleanliness. Much depends upon the preparation she has made, and upon the understanding of those who care for her.

The number and making of the sanitary pads

She should have five or six dozen—more rather than less—napkins or sanitary pads for herself. These should be burned after use, and therefore should be made either of old linen or soft muslin, or of cheesecloth and absorbent cotton. These latter will cost about four cents apiece if made at home. The cheesecloth or gauze should be cut in half-yard squares, and folded with absorbent cotton inside.

With pieces of cheesecloth one-half yard wide it is quite possible to make the napkins without sewing. In the larger drug stores one can buy rolls of absorbent waste, which serves as well as the regular absorbent cotton and is ten cents a pound less in price. The pads should be made of two grades, two dozen two inches thick being needed for use while

the discharge is profuse. The others may be half the thickness.

How to sterilize the sanitary pads

These pads should be sterilized by steaming for an hour, and then drying in a hot closet. The best plan is to wrap these in packages containing six, in squares of muslin. Then they can be conveniently sterilized and only one bundle opened at a time as they are needed. If a regular steamer is not available the dressings may be wrapped in bundles and suspended from the cover of a wash-boiler—hanging just over the water. After the hour's boiling they may be taken out and dried without removing the wrappings.

Use of old bed linen

If quantities of old sheets are kept on hand, the regular bed-linen can be saved, and the washings made considerably smaller. One sheet may be used on the bed at the time of delivery, and burned afterward. Others can be cut in squares, folded, and laid under the patient as a protection to the draw-sheet. Small pads are more easily washed, and can be changed when soiled with less inconvenience to the patient.

Use of sterilized pads

Pads to use under the mother during labor are made of cotton or jute or other absorbent material. They should be about three inches thick and two or three feet square. If several of these are prepared they can be used to absorb the discharges and to protect the bed. They should be sterilized with the other dressings.

How to make the abdominal binder

The majority of physicians require an abdominal binder as a support for the contracting uterus, and for comfort as well. This should be made of unbleached muslin, a straight double band about fourteen inches wide and long enough to go about the body, lapping several inches. Three will be enough

if they can be washed often. It is generally considered necessary to wear them about five days, although sometimes the comfort of a firm support around the body is so great that they are kept on till the patient leaves her bed.

The use of short night-gowns

Unless short night-dresses are very distasteful and uncomfortable, it will be found extremely convenient to cut off the skirts of two or three old gowns, open them down the front, and use them for the first two or three days after confinement. The discharge is profuse, so that if the night-dress is pulled down behind it will surely be stained, and the frequent changing is rather an exertion at the first, while the short gown can be slipped on very easily, with no straining at all. It may be necessary, if one of these garments is worn, to keep a small piece of cotton blanket or outing flannel spread directly over the knees, since the exposure is unusual.

A nightingale, or loose dressing jacket, and bedroom slippers will be needed.

The rubber sheet and its substitute

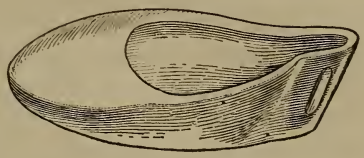
A rubber or oilcloth sheet to protect the mattress should be three feet wide and long enough to stretch across the bed and tuck in or pin at the sides. The oilcloth is less expensive, and serves equally well, though it very quickly becomes cracked and worn. A pad of newspapers may be used in an emergency, and answers the purpose very well if made thick enough and carefully placed.

The need of a bed-pan

A bed-pan is needed, and it is well to avoid the old make, very low front and having an outlet in the back, for it is almost impossible to use it without spilling the contents in the bed. The regular douche-pan is very satisfactory from the nurse's standpoint, but some patients find it exceedingly uncomfortable. The "Eureka," a small pan, or the "Perfection," are

both comfortable and convenient, which make their price less objectionable.

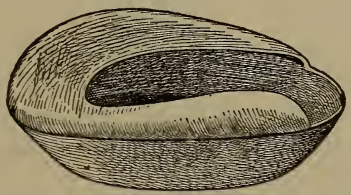
A fountain syringe is also a necessity, and the



"Eureka" Bed-pan

douche-points should, if possible, be of glass, with three outlets in the tip, since these are superior in every way to those of hard rubber. It is easy to tell

The fountain syringe and glass douche points



"Perfection" Bed-pan

when these are clean and they can be made perfectly sterile by boiling.

THE BABY'S WARDROBE

In the preparations for the baby it should be kept in mind that the object of clothing is to protect the little body without impeding motion. A baby is almost constantly moving, and by this exercise the muscles are growing strong and are gaining their full development. Consequently clothing that restricts is just as injurious in its way as insufficient food.

Protect the baby's body without impeding its motion

Simplicity is the next note to sound, for while

Let the baby's clothes be simple; never elaborate

daintiness associates itself instantly with babyhood it is the simple rather than the elaborate daintiness which the clothing should express. The washing for a baby is no small consideration, and for this reason, if for no other, many frills and embroideries should be avoided. It is much more essential that a baby's clothing should be kept clean than that his petticoats should be trimmed or that there should be tucks and embroidery on his dresses. If one wishes to spend a deal of time and money in preparation it is possible to put both into the quality of the fabric and the exquisiteness of hand-work.

Dainty materials

Nainsooks and dimity are the dearer materials, while Lonsdale or the fine-barred muslin makes less expensive dresses.

Varieties in flannel

The flannel, too, may range from the silk and wool stuff, at a dollar a yard, to outing cloth, at ten cents, and one can pay seventy-five cents apiece for silk and wool shirts, or make them of flannel for about ten cents.

The flannel bands

There should be four flannel bands, eighteen inches long and five inches wide. It is better to have them unhemmed, so that they may fit smoothly, for a baby's skin is so easily chafed and creased that all ridges and roughnesses in the clothing should be avoided.

The bands may be left with raw edges for after washing the flannel fulls, so that there is little danger of raveling; or they may be finished with button-holing, which certainly makes them more attractive. Physicians differ as to the desirability of their use, and tight bandaging is no longer approved, the use of knitted bands, like little sleeveless shirts, being substituted for the flannel ones after the cord is off, and there is no need of a dressing.

Substitutes for the bands

The diapers may be of cotton or linen diaper cloth, or of Canton or cotton flannel, the latter being rather the most inexpensive. These should be cut square, as they can then be folded more easily. It is a good plan to make them in two sizes, small ones for first use being eighteen inches square, and the larger ones twenty-six inches. The small ones can be used to supplement the larger size when the baby is older, and they are much less clumsy at first, when all the clothing is hopelessly ample.

The diapers and how to make them

It is wise to have some small pieces not larger than six inches square to use till the bowels have

Baby's Band

discharged the first black, tarry substance that fills them at birth. These may be old pieces of napkins or table linen, and can be burned, as washing them is extremely difficult.

Small pieces of old table linen for use at first

As a matter of fact a great deal of labor can be saved if these pieces are always put inside the diaper to receive the discharge from the bowels. They may be made double, and can be more easily rinsed out and washed than the bulkier napkins. There should be between three and four dozen diapers, the number depending upon the facilities for washing.

Such use also later

Ribbed shirts of silk and wool are very dainty and very expensive, and the all-wool shirts shrink a little in time, even with very careful washing. Cot-

The baby's shirts

ton and wool is more serviceable and less expensive although hardly as warm. The only kind left to consider seems to be the little flannel sack with long sleeves, which can be cut after the pattern of the night-gowns, or even more simply, as shown in the cut. These sacks are very satisfactory, though of course they add somewhat to the work of preparation. Four of these little garments are enough, for they are very easily and quickly washed and dried.

A little short-sleeved and low-necked garment for hot days

Most of the mothers of the present generation used to wear little fine linen or muslin shirts, low-necked and short-sleeved, in their own babyhood, and very often they will have one or more of them in their possession. While we can not advocate their

Baby's Shirt

use as a regular habit, they are often of service during the summer if the baby is troubled with prickly heat or any such eruption.

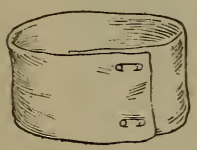
Condemnation of old pinning blanket and petticoat with bands and their substitute

Remembering our statement that freedom of motion is an important point to consider in preparing the baby's wardrobe, we must at once condemn the old-time pinning blankets and petticoats with bands. They are awkward to put on, and it is almost impossible to make them secure without pinning them too tight. It is much better for the baby and easier for the mother to put on dress and petticoat together, and this is quite possible if the latter is made like a sack gown without sleeves, buttoning behind.

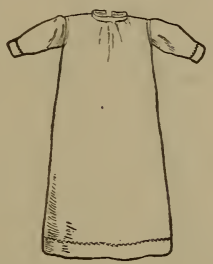
There should be four of these made, as I said

above, either of silk and wool, all-wool, or outing flannel. They can be made dainty to any degree, with embroidery about the hem and with the edges of neck and arms eye-scalloped and button-hole stitched, or they can be plain and simple, but they should if possible be finished with flat seams, opened and cat-stitched, so that there will be no ridges to make the baby uncomfortable. The skirt need not be longer than is necessary for warmth. Thirty-two inches from neck to hem ought to be sufficient

The making of the sack gown



Band



Skirt

length. Only one of these need be worn at a time, and no white skirt is needed.

The little dresses may be made by a simple sack pattern, or with yokes. The yoked gown gives more opportunity for trimming, but the sack seems more suitable for the first slips. These can be finished with a bit of lace in neck and sleeves, and they do not represent the amount of labor in the making and after that the trimmed dresses do. Cleanliness, let me emphasize again, is the essential, and anything which makes that more possible should be considered.

The simple little dresses

The number of dresses, as is true of all the articles, depends upon the amount of work, time, and money that the mother is able to give. One can keep a baby

The number of gowns

fresh and clean with very few changes, if frequent washing is possible, but slips wear out quickly, and it may be as well from an economic standpoint to have a generous supply. Eight is a good number, and of these the plainest can be used in the summer for night-gowns when the flannel ones are too warm. They should be only a trifle longer than the petticoats.

Here we have the baby dressed, with due regard for both comfort and health. The little band, put on

Petticoat

Dress

A dress for baby founded on comfort and health

firmly, but not too tightly, the shirt and diaper, then the petticoat and dress, all supported from the shoulders, complete a costume which provides for the necessary activity of a growing child, which can be adjusted without discomfort to him or inconvenience to the mother, and which can be kept in order with comparatively little labor.

A flannel night-gown

At night a flannel night-gown should replace the petticoat and dress. Outing cloth is quite suitable for this, for the change is as much on the ground of fewer coverings as of more warmth. The one loose

dress gives a little more room for relaxation, and it will also be found that it will save laundry work. A slip and petticoat can be aired and often can be used again if they are not worn during the night.

Socks if the baby's feet are cold

Socks are rather unnecessary unless one finds it difficult to keep the house warm enough and the baby's feet are inclined to be cold. It is almost impossible to keep a premature baby sufficiently warm, and socks are very useful in such a case.

A winter coat and a summer coat

A warm coat for winter and a thin one for summer are necessary, for a baby should not be deprived of his fresh air out of doors at any season. The coat may be made of cashmere, or silk and wool flannel, or of eider-down or corduroy. Thinner stuffs should be lined and padded for winter weather.

The little close cap

Close caps to match the coat in weight, and in winter in material also, can be bought ready-made, or can be made in the home. Nothing is daintier than the little old-fashioned embroidered caps that our grandmothers used to make for their babies, and some young mothers are fortunate enough to have those among their possessions.

A loose flannel wrapper

If a covering is required for warmth in the early morning or when for any reason the baby is exposed, a loose flannel wrapper or little kimono will be very convenient. These should be made ample, and the material may be soft cashmere, outing flannel, nun's veiling, or challis. The kimono pattern is as pretty as any, with the hem of folded silk. Feather-stitching and French knots make an attractive finish.

The little bibs

Bibs are useful from the first of a baby's life, especially if vomiting or regurgitation is common, and they are quite essential later when teething begins and the saliva flows almost constantly from his mouth. They can be bought for very little, but if

Their making

simply made they will be even less dear if done at home. A quilted cotton lining is necessary, or a layer of wadding may be laid between lining and outside and quilted together. The outside may be of lawn, cambric, or stout diaper cloth, and may be trimmed or plain. The dainty linen bibs, lace-trimmed and embroidered, are largely decorative, though perhaps they offer a little protection to dress or cloak if no such calamity as drooling or vomiting occurs. About twelve bibs will be necessary.

In using the "Gertrude" patterns

The "Gertrude" patterns are very satisfactory, but the outfit bearing that name includes both a long-sleeved flannel slip and a petticoat or sleeveless slip as well. With a band, shirt, and flannel skirt coming from the shoulders a baby does not need another woolen garment.

The baby's blankets

Several squares of flannel made from one width of the goods may be bound with wash ribbon or silk tape, and are very useful to wrap the baby in for his bath or to put about him in bed.

The blanket at his birth

A large piece of old blanket should be provided to put him in immediately after birth. He may be kept wrapped up in this till he is oiled and dressed, and then the blanket can be burned if it has been badly soiled.

Value of a knitted Shetland wool blanket

In caring for a baby one of the most practicable coverings is a blanket about crib-size loosely knitted of Shetland wool. It may be doubled, and is still soft enough to wrap about the little body when one is carrying him from room to room. It is very convenient as an extra bed covering, and tucks in about the small person very cosily in his carriage.

The baby's towels

The towels should be either of soft old damask or of cotton diaper which has been washed till the stiffening is quite out. A dainty towel is made by

finishing the ends with button-holed scallops instead of the commonplace hem.

A sponge can not be kept absolutely clean, and it is much better to use a soft cloth. A bit of old flannel or woolen shirt answers the purpose very well. The pores of a sponge gather dirt and form a breeding-place for germs, and, in spite of care, it can not be kept free from all trace of living organisms except by impracticable methods of sterilization.

A soft cloth better than a sponge

LIST OF CLOTHES

8 Bands	4 Night-gowns
48 Diapers	2 Wrappers
4 Shirts	3 Blankets
4 Knitted Bands	2 Caps
4 Sleeveless Flannel Slips	2 Cloaks
8 Dresses	12 Bibs

Borated talcum powder is a reliable sort to use on a baby. Cornstarch may be substituted, but owing to its tendency to absorb water it is liable to become caked on the skin and is not so readily removed.

Powder for the little body

The soap should be a pure castile or ivory. There are few purer soaps on the market than the ivory, and it possesses the advantage of being easily obtained and of little cost.

Need of pure soaps

There should be safety-pins of three sizes, and care should be taken to buy those with sharp points. There are often a good many thicknesses to pin through, and there is much less danger that the pin will slip and prick the baby's flesh if it goes in easily. If the pins fasten from either side a good deal of labor is saved, and every little counts in the care of children.

The kinds of safety pins

The baby's eye wash and its use

Ten cents' worth of boracic acid powder will serve for a wash for eyes and mouth, and it is convenient to have a special cup or bowl for the solution. The cup may be of white enamel, which is easily cleaned, and may be put over the fire or gas flame if a little hot water is needed. Small squares of soft muslin or handkerchief linen or bits of absorbent cotton can be used to wash the eyes and mouth. The cotton is rather more convenient, but if it is not at hand the little squares answer the purpose.

THE NURSERY FURNISHINGS

The baby's separate bed

It is far better to have a separate bed of some sort for the baby than to keep him with the mother. There are of course elaborate bassinets, but as we are aiming at moderation in the cost of our preparations we may dismiss those with a word. They are dainty in their design and decorative as room furnishings, and are convenient besides, but at best they are of temporary use, for a baby soon demands more space asleep and awake, and if they are to remain looking fresh they must be renovated before many months.

The crib and its clothing

A clothes-basket makes a cosey bed for the little one, and it may be set on a standard to bring it to a convenient height, but it is soon outgrown unless the baby is abnormally small. A crib is most satisfactory and it is really as well to buy that at the first so that all the bed linen may be made for it, and there need be no thought of changing it till the child is quite grown. It should be made up like an ordinary bed, with sheets and blankets, and a very flat pillow, which may be made of two or three layers of absorbent cotton sewed into cheesecloth and covered with a little case open at each end. This pillow raises

the baby's head enough, and may be destroyed if it becomes badly soiled or soaked.

A square of rubber should be kept over the lower sheet. Pads of canton flannel made of several thicknesses and quilted firmly, or of absorbent cotton and cheesecloth, can be easily washed, and with the rubber square thoroughly protect the mattress. No spread is necessary for the little baby, but when he is old enough to be out of his bed a part of the day a dimity coverlet is suitable. The rubber square

In buying a bath-tub it is well to follow the suggestion made with regard to the bed, and to get one large enough to serve for some years. The tin tubs meet every demand, except, perhaps, the æsthetic, The metal tub

White Enamel Bath-tub for Baby

which is better satisfied with those of white enamel. The latter are much more expensive than the tin tubs, but will also last longer.

A very convenient but not especially durable tub is the one made of rubber sheeting fastened on a folding frame. It stands at a good height and when not in use takes up very little room. If the rubber becomes cracked in any way the tub is quite useless, but with care they often last as long as those of tin. Their durability depends largely upon the care that is given them. If they are used as catch-alls, some hard or sharp object is very likely to puncture the rubber. If they are not dried properly after use, or if they are kept in a very cold room part of the time, they soon crack. The rubber sheeting tub

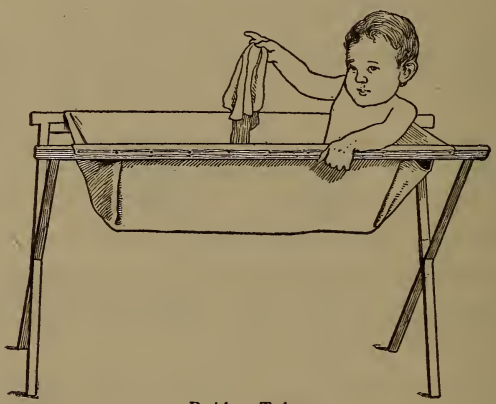
It is possible, of course, to fit out the baby with

The white enamel fittings

most elaborate toilet paraphernalia. A white enamel tub, bowl, and soap dish, with powder puff and pin tray also in white, may stand on a round white table. This brings the tub at the right height for the mother sitting in a low chair, and gives room when the bath is over for the basket containing various other baby belongings.

White furnishings

A small clothes-horse painted with white enamel is extremely useful, and with the crib and a white chiffoniere or bureau complete the nursery furniture.



Rubber Tub

The baby's basket and its fittings

The basket may be elaborately decorated with frills of muslin over colored silk or sateen, or it may be quite unadorned. But it should contain a pincushion stocked with threaded needles, a spool of thread, a thimble, and a pair of blunt-pointed scissors. The brush and comb, little studs or pins for the dresses, and the bands rolled ready to put on, may also be kept in it. It is possible to get on with very few accessories, but on the other hand we must remember that preparation and equipment that make

for ease and convenience are economic from the standpoint of time, labor, and nerve strain.

If the baby has these individual belongings much less time will be spent in looking up the little garments and putting them together before the bath is given, and the spotlessness of white enamel is in itself an incentive to cleanliness and order. It takes much less time also to keep such ware in good condition, and, besides, non-absorbent materials are much more sanitary to use about a baby.

Gain from sensible equipments for the baby

The belongings of the child should never be used by any other member of a household. He is usually very susceptible to disease and can be protected from it to some extent if ordinary care is taken.

Guarding the baby's things from others' use

In choosing a room that shall be given up to the baby's use it must be kept in mind that the larger part of his life during babyhood is to be spent there. He needs fresh air and sunshine more than any plant does, in proportion as his organism is more complex and delicate. We may not see results as immediately in the child, but he can not live in an ill-lighted, ill-ventilated room without feeling the effects of this vital lack.

In choosing the baby's room

The homes where a nursery can be set apart are comparatively few, but this rule applies to any part of the house where the baby lives. He should *never* be allowed to sleep in an inner room, or in one which is not constantly receiving a supply of pure air. The windows may be darkened while he takes his naps, but he should spend his waking hours in sunlighted rooms.

Need of ventilation and sunlight

IV

LABOR

Duration of Pregnancy—Preparations for Confinement—Stages of Labor—Contractions of the Uterus—Emergencies—After-treatment of Mother—After-treatment of Baby

DURATION OF PREGNANCY

THE duration of pregnancy is two hundred and eighty days. The usual method of computation is to count back three calendar months from the date of the cessation of menses, and then add seven days. This gives a date that approximates the correct time as closely as possible. Example: Menstruation ceased June 1; counting back three months brings us to March 1; and adding seven days gives us March 8 as the probable date of confinement. Children may be born, and live before the end of that time, and there are records of pregnancies which lasted as long as twelve months.

The method of computing date of confinement

During the last two weeks there are usually some premonitory symptoms, which may serve as a guide, if it has been impossible to make an accurate reckoning. The uterus sinks in the pelvic cavity, the abdomen consequently diminishes in size, and the palpitation and difficulties in breathing are consequently relieved. The increase in pressure on the lower bowels and bladder are greater, however, and there are frequent evacuations.

Premonitory symptoms of confinement

The provisions for the support and nourishment of the child in the uterus are very wonderful, and it may be well to consider for a moment the marvelous ar-

Marvels of pregnancy

rangement by which it is retained there for the term of nine months and expelled at the end of that time.

In the first place, the after-birth, or placenta, is attached to the uterine wall, and is brought into close contact with the uterine blood-vessels, so that the blood stream of the mother supplies its vessels, and, through it, the circulatory system of the fetus, as the child is called during its life within the womb. This nourishment by the blood of the mother is accomplished through the cord which extends from the navel of the fetus to the placenta, and is simply three large blood-vessels inclosed in a jelly-like substance. Finally the fetus itself is floated in a membranous sac of liquid, which effectually protects it from external shock.

Nature's marvelous intelligence in nourishing and protecting the unborn baby

The causes that normally bring about the birth of a child, at the end of nine months, are not fully understood. The statement most generally accepted is that the uterus has reached its full development, and the pressure of its contents stimulates it to contractions; but there is doubtless besides an increase in the irritability of the muscular tissue, and a consequent quickening of the sensitiveness in the nerve-supply at this period, which are not wholly comprehensible phenomena. Whatever the exact source of this stimulation may be, its effect is to cause the muscles of the uterus to contract with so much force that the membranous sac is ruptured, the after-birth is loosened from its attachment to the wall of the womb, and the child, with these accompanying membranes, is expelled.

At full development the muscles of the uterus contract and the baby is born

During the course of pregnancy, there may be an occasional pain through the abdomen, but these are usually spoken of as "false pains," and can be relieved by a cathartic or an enema. The true pains are first felt in the back, and though it is quite possible to be misled in regard to false pains, when labor has really

"False pains"

begun there is rarely any doubt about it. A true labor pain is a contraction of the uterus, followed by a pause, during which there is relaxation. These pains come at regular intervals, at first very short, while the intervals are long, but gradually growing longer and more severe, till they follow each other with almost no pause at all.

Character of true labor pains

PREPARATIONS FOR CONFINEMENT

When the premonitory pains begin, there are certain preparations which will help to some extent at the time of delivery, and will make the period in bed rather more comfortable. Often slight pains are felt many hours before the birth of the child, so that there is time enough for the bath to be taken, and for the bed to be made, before it is necessary to lie down. It is a distinct advantage for the bowels to be thoroughly evacuated, and an injection of warm soap-suds should be given, unless they have already moved by the action of a cathartic.

The bath and enema when the slight pains are felt

Arrange the hair in two braids, which may be pinned up out of the way if necessary. After the bath the night-dress should be put on, with a loose bath wrapper over it, so that there need be no delay in getting to bed, and no complicated garments to loosen when the severe pains begin. Long stockings, reaching well above the knees, may be kept on for protection and warmth.

The hair and night-gown

The maternity bed is made very like the one prepared for an invalid, as described in foregoing pages. If it is a low bedstead, it is a great convenience to have it set up on blocks a foot and a half high. Any carpenter can make them, with a slight depression for the casters, so that the bed will stand firmly. At the time of delivery, the doctor can work over the patient

The maternity bed

Disadvantages of a low bed

much more easily if he can stand more nearly erect, and it is also a great advantage for the nurse to have the bed high. The lifting and rubbing, combing the hair and bathing are very difficult for a person of even average height, over a low bed, and the muscles of the back are under constant strain. Because of this the patient is more conscious of the effort, and so is indirectly affected by the attendant's discomfort.

Value of an extra oil or rubber sheet

The lower sheet, rubber, and draw-sheet are put on in the usual way, but at the time of confinement an extra oilcloth or rubber and a sheet are to be spread, from the top of the draw-sheet to the foot of the bed. This securely protects the mattress and lower sheet, and after the birth of the child, can be entirely removed, leaving the patient on a clean bed.

Necessities and conveniences for the doctor

Before the doctor comes, plenty of water should be put on to boil, and soap and towels for his hands must be ready. There should be a vessel to receive the after-birth, and two basins of agate or enamel ware will be needed. The bed-pan and fountain syringe and a fresh jar of pure vaseline must be at hand.

Bowls for use in case the baby's respiration is difficult

It is well to be provided with two large bowls of some sort, large enough to hold the baby. Sometimes if the labor is prolonged, it is difficult to establish the baby's respiration at first. The lungs have never been of use till he comes into the world, and the first gasp of air he takes has to open little air-sacs that have never before been expanded. If the breathing is delayed, a sudden shock, like a plunge into warm and then cold water, is generally effective, and it is well to be prepared for this possibility.

Other necessaries

Other necessaries are disinfectants—carbolic and bichloride—a bath-thermometer, a clean nail-brush for the doctor's use, and some sort of tape—Dutch tape or bobbinet—for tying the cord. It is well to inquire

from the doctor just what supplies he will bring himself, as it may save a useless duplication.

STAGES OF LABOR

The three stages of labor

Labor is commonly spoken of as being divided into three stages, the breaking of the water usually indicating the end of the first. The second terminates with the birth of the child, and the third with the expulsion of the after-birth.

Characteristics of pains of the first period

During the first stage, the pains are very severe, comparable only to the most intense suffering during menstruation, and are caused by the contractions of the uterus as it seeks to rid itself of its contents. These pains are rhythmic, coming at very regular intervals, and with increasing frequency. It is better for a woman to walk about between them, because the exercise stimulates the uterus to more frequent contractions.

Discouragement

This is the most discouraging period, because the pain seems so unavailing, and because, especially at the birth of the first child, it may last for many hours.

Encouragement

The cheering voice and the encouraging word are especially helpful just here, for though the pain must be borne alone, there are little devices that make the burden lighter. A drink of water now and then is grateful, even if the need of it is not realized, and if the labor is prolonged the nourishment should not be neglected. A cup of soup or milk will keep up the needed strength, and prepare the woman for the second stage, when there is definite work for her to do.

Nourishment

One fundamental principle of nursing

And just here let me emphasize one fundamental principle of nursing: When food is to be administered, it should not be mentioned until it is ready to place before the patient. Nine times out of ten it is refused, because the mind has had to make the choice, and dwell upon it while it is being prepared. A woman

will rarely ask for food in the midst of her labor pains, but she will generally take some simple nourishment if it is brought to her, and she will feel better for it.

Care of the mother at the end of the first stage

After the "waters" have "broken," which signifies that the sac of fluid in which the baby has rested has been ruptured by the pressure downward against the neck of the uterus, the mother should at once lie down. This expulsion of the fluid generally indicates that the mouth of the uterus has either opened or become softened and ready to open; and this opening marks more exactly the end of the first stage than the rupture of the sac of water, though the latter is commonly an accompaniment, and the only apparent sign. Before lying down in the bed, the night-dress should be drawn well up about the hips, so that it may not be soiled by the discharges. Care must be taken to keep the breasts protected and the entire body sufficiently warm.

Character of pains of the second stage

With the beginning of the second stage, the character of the pains changes, and though they may be more severe, they seem always easier to endure. They are spoken of as "bearing-down pains," and now the woman can help along by the straining effort which she will instinctively make, and by taking a rest in the intervals of quiet.

How the nurse can help at this time

The nurse or attendant can help her, too, first, by giving her something to pull on, like the ends of a sheet, which has been thrown over the bed-post; second, by placing a box on the foot of the bed, so that she can brace against it with her feet, and third, by pressing the hands firmly against the small of the back. In the period between pains, it is very grateful to have the face wiped with a damp cloth, especially if this stage of labor is prolonged.

Immediately after the birth of the child the pains cease, and there is an interval of from twenty min-

The third stage of labor or after-birth

utes to half an hour before they begin again to bring about the expulsion of the placenta. The placenta should be received in a vessel prepared for it, and it must not be thrown away or disturbed until the physician has examined it. He can tell by its shape and the appearance of its surfaces whether or not it has come away entire.

Need of the doctor's examination of the placenta

If any portion of it remains in the uterus, that organ must not be allowed to contract firmly until every portion of the membrane has been expelled. After the doctor has finished his examination, it should be wrapped in thick paper and burned.

Chills after the labor and when the milk comes

Immediately after the birth of the child there may be a slight chill. This is due in part to nervousness, and in part to the fact that the presence of the child in the uterus has increased the bodily heat of the mother. There is liable to be another chill on the third day, when the milk comes into the breast. A chill at any other time should be promptly reported.

CONTRACTION OF THE UTERUS

Helping the uterus to contract

As soon as the uterus is empty, it should begin to contract, which prevents hemorrhage, and is the beginning of its return to normal size. The attendant should place her hand over the abdomen after the placenta has been expelled, and by making a kneading motion over the uterus she can help to its contraction. If it can be felt as a hard firm ball, just below the navel, it is in proper condition and need occasion no uneasiness.

To what after-pains are due

After-pains are due to contraction of the uterus after the birth of the child and the expulsion of the placenta. They do not occur after the birth of the first child, but are often very severe in later confinements, and sometimes last for three, or rarely for four,

days. They are unaccompanied by fever or by any alarming symptoms.

EMERGENCIES

At the birth of the first child there is generally little danger of a rapid delivery, so that the possibility of the woman's being alone or with an attendant only is slight. But in any case this need not be regarded as a terrifying calamity. The progress of labor can be retarded a little if she restrains her tendency to bear down during pains, and expels the air from her lungs with her mouth open, which relaxes the muscles. If the child is born, she needs only to see that his head is lifted up so that he can breathe properly, and that there is no tension on the cord. An attendant, whether or not a nurse, can lift the baby up, put a clean pad under him, see that he cries enough to establish respiration, and cover both child and mother till the doctor comes.

If the mother is alone how she can retard labor

What to do with the child till the doctor comes

If the labor has come on precipitately, and the doctor can not be summoned, the nurse must assume the responsibility of cutting the cord.

A responsibility of the nurse if the doctor is not present

When it has quite ceased pulsating, a piece of bobbinet, which should have been previously sterilized with the other dressings in a package by itself, may be tightly tied around the cord in two places, one ligature being about four inches and the other two inches from the body of the child. In making the knots, which should be extremely firm, care must be taken to keep the hands absolutely steady, as sudden tension on the navel might result in rupture or even a fatal hemorrhage.

Directions for tying the cord

After the two ligatures are made, the cord can be cut between them with blunt-pointed scissors, and the baby can be rolled in his blanket, and left without any fear of harm.

Cutting the cord

Action in case of flowing after delivery

The flowing directly after delivery will be profuse, but should it seem in any degree alarming, the condition of the uterus should be at once investigated. If it is not firm and hard feeling, as I have said, like a hard round ball in the abdomen, it is not contracting as it should, and that will explain the increased flowing of blood. If it is kneaded with the hand, or if a little cold water is dashed over the abdomen, it often contracts at once, firmly enough.

The baby helping to muscular contraction

Putting the baby to the breast also tends to bring about contractions, and both these expedients should be tried, though a doctor should be summoned if anything in the nature of a hemorrhage occurs.

Special tenderness over any portion of the abdomen, an offensive odor to the discharge, or a return of the bright red color after it had become dark should be reported.

Cause of lacerations

Sometimes in a very difficult confinement, when the child is large, or the outlet is narrow, the tissues are torn during the birth. The laceration may be in the neck of the uterus or in the tissues about the vagina, and often a physician will proceed with their repair without a question.

Repair of the laceration at once the best course

If he does leave it to the patient, she should have no hesitation in choosing to have it attended to at once. In that case the operation is a very simple one, and is almost invariably successful, as the parts unite very quickly. Very unpleasant consequences follow the neglect of such an injury, the nerves being so closely involved that there is much sympathetic disturbance, such as headache and pain in the back, besides the actual discomfort of the laceration. A secondary repair means a much longer time spent in healing, and an extra period in bed with the attendant weakness.

AFTER-TREATMENT OF THE MOTHER

Cause of the chill

After the placenta has come away, and the contraction of the uterus is assured, the woman should be closely covered, given a warm drink, and allowed to rest, for a nervous chill, described on foregoing page 240, is likely to follow. This is caused in part by the evaporation of perspiration from the skin after the cessation of muscular activity, and is no occasion for alarm. It lasts a short time, and is relieved by the application of heat.

Full attention to the mother

After the patient has been bathed, the abdominal binder put on, and the soiled clothing removed from the bed, she will probably fall into a light sleep, when the attention of the nurse may be turned to the baby.

AFTER-TREATMENT OF THE BABY

First see that the child is normally developed

The first task is to make a thorough examination of the child to see that it is normally developed. The presence of external defects is at once remarked. The mouth should be inspected, because cleft palate and tongue-tie interfere with suckling, and can be corrected at an early age. The navel, of course, receives especial care, and the genitals and passage into the bowels should be observed, to make sure that there is no impediment to the performance of natural functions. It must be ascertained that the opening into the canal leading into the bladder is present, and that the rectum and anus are normal.

Examination of specific parts

Rarely in girl babies the passage into the vagina is found to be entirely closed by a membrane called the hymen, which stretches entirely across it. When this is the case, a very slight operation is necessary, and may be done at once. The doctor has already applied the dressing for the cord, which is simply a layer of

The dressing of the cord

sterilized absorbent cotton, or pad of gauze. Over this he has put on the bandage, which should not be removed without his approval. It is not safe for any one who does not understand the principles of surgical cleanliness to attempt to do this dressing, since serious consequences, even blood-poisoning, might result from lack of proper precautions.

Removing the white cheesy coating

The baby will be found to be covered with a white cheesy substance, which was necessary as a waterproof protection, since the medium in which he lived was fluid rather than air. Albolene, olive oil, or pure vaseline may be used to remove the substance, and it is well to rub the ointment thoroughly over the surface of the body some little time before the bath is given. If this can be done, the warm soapy water will wash off all trace of it.

Particular care as to this coating

Particular care must be taken to remove the cheesy coating from the creases of the body, under the arms, in the groins and about the genitals, as it is very irritating if allowed to remain. The scalp, too, needs especial attention, since after this substance hardens it is much more difficult to remove, and if it remains, it collects dirt, and becomes unsightly, if not diseased.

Letting the baby rest after the oiling

After a thorough application of the oil, the baby may be wrapped in a warm woolen blanket, and left for several hours, if need be, without harm. It sometimes happens that the mother needs especial care, and if the baby is warm enough, and if his eyes are protected from bright light, it is quite as well to put off giving his bath and dressing him for four hours or so, after the oiling. It will be found that he is very easily cleaned after that length of time, because the white substance has become quite softened. He may then be dressed in a diaper, shirt, and flannel nightgown and allowed to take his first feeding.

V

AFTER-CARE OF MOTHER AND CHILD

Rest—Dressings—Breasts—Diet—The Baby's Bath—The Cord-dressing—Order of Dressing—Care of Eyes, Nose, Mouth, and Breast—Tub-baths—The Band—Feeding

REST

WE have spoken of the changes that have gone on in the uterus during the nine months of pregnancy. These have been not only changes in size and weight, but also in functional activity, which have involved the entire system.

With the birth of the child, the immediate cause of this activity is removed, but Nature has now to re-adjust the organs that have been working under abnormal conditions, and especially to bring back the uterus to its previous size and position. She accomplishes the work usually in about six weeks, which indicates that the tissues are in a state of tremendous activity. This fact should impress upon our minds the necessity of rest during this period, or the greater part of it. It is marvelous enough that the system can recover its usual poise after such a long-continued strain, and even more wonderful to think of the rapidity with which the uterus contracts and gets rid of the extra tissue which it has taken nine months to acquire. It seems only fair that a few weeks should be allowed for the strengthening of ligaments and muscles, and for the building up of tissues more or less depleted by the double burden they have carried. For these reasons three weeks in bed are better than two, and

Nature's readjustment of the organs

Rest to help in that readjustment

unless a woman is very strong three will probably leave her in still better condition.

Re-establishing nervous and physical tone

For three or four days after delivery, the mother should be kept very quiet, lying most of the time on her back, especially if the discharge is profuse. Visitors should not be allowed to see her for at least a day or two. Quiet and rest re-establish the nervous and physical tone within a short time, and the rapid convalescence is as remarkable as Nature's other methods of adjustment to changed conditions.

DRESSINGS

The napkins should be removed every three or four hours, for the first day. After that, every eight hours will be often enough.

Bathing parts with a mild disinfectant

Each time they are changed, and after urination, the genitals should be bathed with a mild disinfectant. This may be a bichloride solution made with one part of the 1-1000 preparation with four parts of water. This bathing should consist chiefly of pouring the water gently over the parts, while the patient is still on the bed-pan, and then drying them before adjusting the fresh pad.

Cleanliness and comfort

This bathing will make for cleanliness and comfort, will remove disagreeable odors, and hasten the healing process. A separate piece of cloth should be put under the body before the bed-pan is used, and with the frequent changing of the pads, the bathing and the use of squares laid over the draw-sheet, it will be found possible to have a tidy bed, without too much extravagance in the way of laundry.

BREASTS

Care should be taken to cover the breasts, because, since at this time the glands begin to exercise their

function of secreting milk, they are more susceptible to cold. An inflammatory condition may set up, and become very painful, and by keeping a light-weight bit of flannel over the breasts from the first, the danger is avoided. It is well to keep a clean cloth—linen or cotton—over the nipples all the time, and to wash them with boracic acid solution after each feeding.

Protection of the breasts

The milk is manufactured by glands in the breasts, and it must be remembered that the nipples lead into as well as out of these glands. If they are not kept clean and covered, or if particles of the milk are allowed to remain on them and to decompose, the danger of infection is very great. An abscess is caused by infection, from some such reason, or because the milk within the breast is allowed to accumulate and become caked.

Cleanliness of the breasts

If lumps are noticed in the breasts, the attention of the doctor should be called to them. Gentle massage will generally soften them, but unskilled manipulation may be more harmful than beneficent. The massage should be given with the palm of the hand, being a gentle circular motion from the base of the breast toward the nipple.

When lumps form

If there is any tendency toward engorgement of the breasts, the baby should be put to nurse with especial regularity, and in extreme cases the milk may have to be drawn out with a pump. Pumping tends to increase, rather than to restrict, the flow, however, so it should be a last resort. Liquids may be largely eliminated from the diet, and if the child is a healthy one, this difficulty will soon be overcome by his necessary appetite.

In engorgement

There is rarely any excuse for the formation of an abscess in the breast, if proper care is given. The bunches should be reported to the physician as soon as

Proper care does away with abscess

they appear, and they generally yield to massage. If they become inflamed, ice-bags are ordered, the bowels are kept open by the use of laxatives, and the child is taken from the breast. The chief danger lies in delay in telling the doctor of the trouble, and in beginning treatment.

Chapped or cracked breasts

If the breasts have had no treatment during confinement, and if the nipples are flattened at all so that there is constant tension during nursing, they sometimes become chapped or cracked. This is intensely painful, especially since the baby must still be put to the breast so that the milk shall not accumulate.

Washing the breast after each feeding

The prevention of this condition, as well as one of the cures, is cleanliness, which means that the nipple should be washed after each feeding, and in case any ointment or solution is applied, washing before feeding is also necessary.

If the difficulty is slight, boracic acid ointment used after each nursing will often be sufficient.

Other treatment

Painting the nipple with white of egg, applied in several coats is a help, because it shuts out the air, and gives the fissure a chance to heal. The same treatment may be tried with compound tincture of benzoin, but if the condition is obstinate, the doctor will probably touch it with a solution of nitrate of silver, twenty grains to the ounce, which greatly hastens the healing process. Two treatments daily are sufficient, and if left to an attendant, it should be done either with a camel's-hair brush, or with a very small swab of cotton twisted about a wooden toothpick.

Care in treatment

The solution should not be allowed to flow over the entire nipple, but only over the cracked surface. The effect of its use is to cauterize the edges of the fissure, and thus to make a fresher wound, which tends to heal more easily.

Unless the flow of milk is excessive, the breast may be given entire rest for twenty-four hours, which will often effect an entire cure. If this is not the result, some provision must be made to draw off the milk from the breast, because of the danger of abscess resulting from an over-accumulation.

The use of a nipple-shield relieves the tension when the baby nurses. This covers the nipple with a glass bell, having a rubber mouthpiece very like that of a nursing bottle. The disadvantage of its use is that the baby may become accustomed to the longer rubber nipple, and so may take the breast more reluctantly or refuse it altogether at first. The nipple shield

DIET

The diet of the mother for the first two days should be liquid. Milk is the best food, both because it is the most nourishing, and because it helps to increase the supply in the breasts. Tea and coffee tend to check the milk supply, so they should not be taken unless the milk is secreted in excess. Cocoa, gruel, and soups will vary the fare, which may be increased after forty-eight hours to semi-solids, *i. e.,* eggs, soft toast, custards, etc., and after the first movement of the bowels, regular diet is allowable. The diet after labor

If the bowels have moved just before the baby's birth, there need be no uneasiness if there is no evacuation for two or three days. Then the doctor will order either a cathartic or an injection, and very often after solid foods and fruits are given the stools will be regular and natural. The same care should be taken after confinement as before, to regulate the bowels, and to avoid the ills of persistent constipation. Care of the bowels

The daily care of the mother should be what is given an ordinary bed-patient. The daily bath, the

Daily care of mother

changing of bed-linen, and the putting her room in order should be attended to before the baby's bath is given. It is much more essential for the mother to start in her day with the cheer that attends cleanliness, fresh air, and order than for the child to have early attention. It is perfectly safe to give her a full bath, between blankets, on the fifth day, and before that alcohol rubs and sponging will freshen her each day.

Rubs and baths

There may be interested neighbors or relatives who will insist that her hair must not be combed for a week after delivery, and that all bathing is dangerous. It is to be hoped that their counsel will not be followed. It is quite unnecessary to neglect the patient in any particular, and if she is clean and decently cared for her recovery will be hastened rather than retarded.

Advice of neighbors

THE BABY'S BATH

It is well to plan to give the bath at about the same time if possible each day. This should always be before rather than after feeding; and preferably before, because the child can be put to the breast immediately after the bath.

Before taking the baby from his bed everything needed for the bath should be collected and put in place. The basket holds the needles and thread, the pins and the bands, tightly rolled, and it may stand on a table or chair near the bath-tub.

Everything necessary for the bath close at hand

The powder and the cup containing a tepid boric solution should be at hand, with the soap, face cloth, and towel. The bath-tub need not be full, as that makes it very heavy to lift, and there is no advantage in a quantity of water for a baby who is presumably clean.

The clean clothing may conveniently hang over the back of the rocking-chair that one sits in, if it has a post or projection at one side. If not, they should be within easy reach on a towel-rack or chair, and should be placed with the gown and petticoat underneath, then the shirt and diaper, and the band on top, in the order they will be needed.

The clothing within easy reach

It is well to have an extra blanket or flannel square kept especially for bathing, or one can use a flannel apron, which is particularly convenient after the baby begins taking tub baths.

The flannel apron

For the first days he will have a simple sponging, and we must remember in giving it that he is not used to the temperature of the cold world, but that he has been kept at 98.8° F. for the nine months preceding his birth, and we must protect him very carefully from draughts. The temperature of the room should be 75° and that of the water about 100° F. The latter can be fairly tested with the bared elbow.

A simple sponging in the baby's first days

In holding the baby the chair must be low, because the feet should be placed firmly on the ground, with the knees together, letting the baby's head and shoulders lie firmly on the lap.

How to sit and hold the baby while bathing him

It does not matter if the child's legs are not supported, but he can be much more comfortably held if the lap is firm and flat. If the knees separate he will go into the hollow between them and can not be as easily handled.

Placing him then in this position on the bath blanket, remove the clothing, rolling him gently from side to side to unfasten the little garments. The shock to a baby, and in fact to an adult as well, is much less if he is rolled than if he is lifted bodily. The dress and petticoat are unfastened and taken off together, down over the feet. After the shirt is off

Roll rather than lift when undressing the baby or patient

one corner of the blanket should be thrown over him, to protect him as much as possible while the band and diaper are removed. A diaper should always be laid underneath during the bath so that the bath blanket or apron may not be soiled and wet. Then he should be snugly wrapped and his face washed with the clear water.

Don't dab at the baby, but wash sensibly

A baby should never be dabbled at as if he were breakable china. Take the damp cloth firmly over the hand, and wash his face as you would your own. In drying any portion of his body the skin should be patted rather than rubbed with the towel, for it is very delicate and a baby resents any approach to rough usage. After the face is washed and dried the water should be made soapy. Do not rub the soap directly on the cloth, for in that way you use more on his skin than is at all necessary.

Washing the upper parts of his body

The head, neck, and ears should now be washed, rinsed, and dried, and this must be carefully done, because the thatch of down over the little head retains the dampness longer than other parts of the body. Next come the arms, one uncovered at a time, keeping the chest and the rest of the body wrapped in the blanket all the while.

Washing the trunk and legs

Now with the left hand hold the edge of the blanket up a bit away from his body, so that he is entirely covered and protected, but so that there is also a space between him and the covering. With the cloth you can then wash the entire body without letting the air strike directly on it. Turning him over directly on his stomach, a position which a baby almost invariably enjoys, wash the back in the same way. The legs can be exposed, as the arms were, for they are generally being exercised so rapidly that they will not feel the cooler temperature.

Care must be taken to wash off all traces of powder, and to cleanse carefully all the creases of the body, just as was done with the oil in the first bath.

THE CORD-DRESSING

If the doctor is paying daily visits, and there is not a graduate nurse in charge, the bandage and cord-dressing should not be disturbed unless the doctor's orders have been given concerning it. In that case the routine of the bath is the same except that no bathing can be done under the band.

Do not disturb the bandage and cord without orders

If the doctor is not coming regularly, and wishes the cord dressed or the bandage changed, great care must be taken. The dressing will not need to come off unless it is moist. In that case it must be replaced by a fresh piece of sterilized cotton or linen, and no ointment or solution should be used on it.

Most careful treatment of the cord-dressing

If there is no person in authority to consult, and the cord seems to be discharging, or if the odor from it is very offensive, a little boracic acid powder will probably dry it up and is the safest treatment that can be given.

The question of powder is one on which persons disagree, but we may strike a happy mean and use it moderately. While the baby is lying on his stomach draw the puff across his neck and down his back, following it with the hand, so that there is no apparent trace of the powder left on the body. When the puff is used under his arms protect his face with the hand, the back of it placed against his chin.

Moderate use of powder

ORDER OF DRESSING

Now put on the shirt—we are assuming that the band has been left on. Put your fingers up through

To put on the baby's shirt

the sleeves, and pull the baby's hand through, first slipping in the arm furthest from you, then turning him over and drawing the shirt under him.

Never try to push a child's or an invalid's hand through a long sleeve. Either put your hand through to meet his or gather it up into small compass, with the fingers through the opening. After trying both ways it will be easy to understand the prohibition.

Place the diaper under the buttocks before using the powder, which must not be put on in excess. It

The Flannel Petticoat and Dress

Putting on the diaper

only cakes in the groins and irritates more than it soothes. After using the puff, rub the hand over the thighs and buttocks to brush away any superfluous powder. A very good way to put on a diaper is to turn down the upper edge of the triangle—the part that lies under the baby—about two inches, so that it will be double at the baby's back. Bring the ends around and grasp the edges between the thumb and middle finger. Now twist the ends lightly, put them between the legs, and bring up the point of the

triangle to fasten. Turn the hand holding the diaper, and put the pin in so that it comes out on the side where the middle finger is, and not against the baby's flesh. The diaper can be held as tightly as necessary, and there is no danger of pricking the child. Care must be taken, however, not to pin it too tight, since

Care about the pin

Slipping on the Flannel Petticoat and Dress

diapers which bind a baby closely are often responsible for nausea. Now turn him over and fold up the doubled portion. A diaper well put on in this way will never become loosened or drop off.

Slip the flannel petticoat inside the dress and put them on together over the feet, not over the head.

To put on the flannel petticoat and dress

In this way the baby needs to be moved less, and is spared the irritation of having his face covered as the clothes slip down. Put your right hand through the dress from the bottom, and slip it up under the baby's buttocks. Then with the left hand the skirts may be drawn up into place, and the baby rolled over on his stomach while the necks are fastened.

CARE OF EYES, NOSE, MOUTH, BREAST

The boracic solution, half a teaspoon to a full glass of water, is already prepared with small bits of absorbent cotton or squares of soft cloth at hand.

Washing the baby's mouth

Twist a bit of the wet cotton on the fingers and wash carefully but very gently the inside of the baby's mouth. It is necessary to do this at least twice a day to remove particles of milk that might decompose if allowed to remain there, and cause disease. There has been some discussion of late years over the desirability of washing a baby's mouth after each feeding, and many physicians now believe that such frequent cleansing often irritates the tender lining of the mouth.

Bathing the baby's eyes

The eyes should be bathed every morning, or as often as there is any sign of discharge. Taking a bit of cotton between the fingers, allow the solution to trickle over the lid, and unless there is marked inflammation it may be gently drawn across the eye from the nose toward the outer angle. Throw that bit of cotton aside and repeat the same process with a fresh piece.

Three rules to follow

Never dip the cloth that you have used back into the solution. Never use the same piece of cotton on both eyes. Never allow the solution to flow from one eye to the other, as any inflammatory condition is directly communicable.

The nose often becomes stopped with mucus, which makes the respiration difficult, tends to bring on mouth-breathing, which is always to be guarded against, and sometimes interferes seriously with the nursing. A small bit of the absorbent cotton, dipped in a boric solution, and twisted dry can be inserted up into each nostril, and will clear the nose without any discomfort to the child. Cleansing the nose and precautions at that time

If the mucus has hardened, vaseline or oil can be applied in the same fashion, or on a cotton swab on a toothpick. If the pick is used care must be taken not to insert it too far, and not to press it against the delicate membrane in the nose.

Sometimes the breasts of a new-born baby, of either sex, become distended and slightly inflamed, and if pressed a thin fluid will exude from the nipples. Squeezing out this fluid must *never be allowed,* as it only increases the inflammation and may easily produce abscesses. Treatment of the baby's breasts

The trouble usually will right itself within a very few days, but if it is persistent a close bandage applied with perfectly even pressure will be of help. It is better that a physician or nurse should at least superintend the bandaging, because uneven pressure will do more harm than good. The inflammation is not a condition that need cause any alarm unless it is unwisely treated. Caution in bandaging

TUB BATHS

As soon as the cord comes off, the tub bath may be given. The baby is undressed as for the sponge bath, and is wrapped in the bath blanket. While he is thus covered his face and head are washed and dried, and the water is made soapy. Now put the left hand under his head, take the feet between the When the baby is given his tub bath

fingers of the right hand and let him down into the water. There should not be enough in the tub to cover the body, since the navel may not be entirely healed and dry.

How the bathing should be done

Supporting the head in the hand, bathe the body, arms, and legs with the cloth. Avoid trickling the water over the body, but bathe the parts in order, first ears, neck and chest, next the left arm, then the

Placing Baby in the Bath

right, changing the cloth from side to side by carrying it down by the feet, rather than across the chest; last wash the legs, thighs, and buttocks.

Now spread the towel across the knees over the blanket or woolen apron and, taking the baby up by the feet and head, lay him down and instantly wrap him up in the two, patting him gently all over. In this way he is kept quite warm, and is pretty thoroughly dried. After the patting he can be rolled from side to side while the towel is taken out, and

a little extra drying can be done under the arms and in the groins.

THE BAND

The application of the band has not been described, and practice is certainly more necessary than written directions are.

The band should be rolled closely and held in the right hand. Put the roll down on the right side of the baby's abdomen and unroll the band away from you, holding the left hand over the loose end till the roll is slipped under the baby and brought up on the right side. Putting on the band

Now hold the edges of the bandage between the middle and the fourth fingers of each hand, and with the thumb and index finger push the rolled end around the body once more. After it is firmly over the end it need be held no longer, and the remainder of the strip is unrolled and fastened at the end with needle and thread. This method obviates the use of safety-pins, which make a bulkier fastening, and it is really very simple if the thread and needle are always at hand. Fastening with needle and thread

The band should not be put on very tight, as the little bones are compressible and may easily be forced out of shape, causing serious deformity later in life. Besides this, the pressure from a tight band or diaper may cause vomiting. The band should not be very tight

The flannel bandage is necessary only while a dressing is kept over the cord, but the bowels need protection and the knitted band, like a little sleeveless shirt, may be substituted. In summer it may save the baby from attacks of summer complaint, which are commonly brought on by a cold, and in winter the added warmth over a very sensitive part is equally essential. The knitted band

The little piece of sterilized cotton

As long as the navel discharges or is at all moist, the little flat piece of sterilized cotton or muslin must be laid over it before the band is put on. The application of boracic acid powder will tend to dry it.

FEEDING

After the baby's toilet is complete he should be put at the breast, before he is allowed to fall asleep.

The feedings should be given with absolute regularity from the first. A child does not particularly need food for the first twenty-four hours after birth, but it is well to put it to the breast about six hours after. The breasts do not begin to secrete milk in any abundance until the third day, but they contain a fluid which acts on the child as a laxative, clearing the bowels of the tarry substance which fills them. The act of nursing also tends to make the uterus contract more firmly.

The feedings the day after birth

Regular hours for feeding

For the first day the baby may feed every four hours. After that feedings should be given every two hours, beginning at half-past six, and the last feeding being given at half-past ten, leaving the night for both mother and baby to sleep.

Forming habits beneficial to mother and child

He should remain at the breast for twenty minutes, and should be kept awake for that time, and made to nurse. This is often a Herculean labor, but if persisted in the habit will be formed and both mother and child will feel the benefit of it.

How to impair the baby's digestion and gain wakeful nights

The stomach of a baby, like that of a grown person, should have its periods of rest and of work, and if he is kept at the breast and allowed to nurse for a few moments till he falls asleep, then to wake and nurse again for hours at a time, the chances for an impaired digestion and consequent ill-temper, colic, and wakeful nights are almost assured.

A healthy baby should sleep twenty hours out of the twenty-four, and if he is treated fairly his crying will be only a means of communicating his needs to the outside world, and will cease when those needs are attended to.

The more just and rational the training of a baby the more beneficial they are to his welfare

The training of a baby will be discussed later, but this point can not be too often emphasized, that the more rational the methods, the more they appeal to good sense and justice, the more likely they are to be properly hygienic and to make for the vigor and joy of healthy childhood.

VI

ABORTION AND PREMATURE BIRTH

Abortion—Premature Birth—Care of Premature Baby—Gavage and Lavage —Suppressing Milk—Milk-leg—Inexorable Laws of Nature

THE discharge of the fetus during the first six months of pregnancy is called abortion, or miscarriage; during the last three, it is known as premature labor. The term abortion is often misunderstood, because its meaning has been commonly limited to the inducing of labor by illegitimate means. In cases of abortion, the life of the child can not be maintained—it is not viable, in technical phraseology.

Definition of abortion

In premature labor, it is only excessive care and determination on the part of those nursing him that the baby is kept alive, though within a few months he may gain enough to seem like a full-term child, and may have a full and early development in every way.

Of premature birth

ABORTION

There are many conditions that may be responsible for abortion. If the uterus is diseased, or displaced in any way, it is very difficult to carry a child for the nine months. If the temperature of the mother is raised, and the fever continues for any length of time, the fetus generally dies within the uterus, and this brings on abortion. Acute kidney disease or a depleted condition of the blood may be the causes. Long-continued and persistent nausea causes miscarriage, and alcoholism or lack of vigor on the part of the father may occasion it. Mechanical violence, such as

Illnesses of the mother, mechanical or emotional violence

blows, or sudden shock, or emotional violence, worry, sudden grief, or fear, are often exciting causes.

If abortion occurs once, it is extremely liable to be repeated, and a habit is very easily formed, so that it becomes difficult for a woman who has had this experience to bring forth a living child. A weakness liable to repeat itself

The majority of miscarriages occur during the second or third month, so that in cases where it is anticipated especial care must be taken at that time. It is liable to take place at about the menstrual period, and sometimes it may be avoided if the patient lies in bed for a few days each month.

Abortion is really a more serious condition than normal childbirth, not so much with regard to the chances of life as to the effect on the general health and on the condition of the uterus. It must be regarded as a disease, and Nature does not stand ready to set at work upon immediate repairs and readjustments as she does when a pregnancy runs its entire course. As in any disease, she is the physician's chief assistant, and supplements any efforts of his to bring the system back into healthy condition, and often without his direction she overcomes the difficulty. But the dangers of complication are far greater than in childbirth. Dangers and complications far greater than in ordinary childbirth

The first indication that abortion is threatening is generally the appearance of a bloody discharge, with pain through the back and abdomen. This should be the signal for the patient to go to bed, and she should remain there, lying on her back as quietly as possible. The diet should be restricted to fluids, and nothing hot should be given. A doctor should always be consulted, since quieting drugs can be prescribed, which may aid in checking the contraction of the uterus. The first indication that abortion is threatening

Sometimes, with care and absolute rest, a patient

Care and absolute rest

can be carried through till the full term of pregnancy is accomplished. It means, however, absolute obedience to laws prescribed by the physician, and rest, even beyond what necessity seems to demand. Even then it is often impossible to control the flowing, and abortion occurs in spite of the utmost care.

If it takes place after the third month, there are likely to be feelings of chilliness, loss of appetite, and nervousness, which may precede by several days the flowing and the pain.

Forms the early abortion may take

All the discharges should be carefully observed, because early in the course of pregnancy the ovum would look like hardly more than a blood-clot. It may be discharged with its membranes entire, which is more general during the first three months, or it may take the course of a normal birth, the sac of waters being ruptured first. In the first case, the hemorrhage will be slight, and there will probably be little attendant illness. The later abortion occurs the more it resembles a full-term delivery, and the more difficulties arise in its treatment.

Hemorrhage and blood-poisoning are the chief dangers in abortion.

The danger of hemorrhage

When the profuse flowing starts without warning, the doctor should be summoned at once. The patient should lie flat on her back, without even a pillow under her head. The hips may be raised on a cushion, protected by rubber sheeting, and the foot of the bed may be elevated on a chair. She should never be given hot drinks or alcoholic stimulants, but she may take plenty of cold water or milk. The room must be kept cool and the recumbent position must be absolutely maintained, and no exertion should be allowed. Above all, the feeling of alarm should be concealed as much as possible from the patient. A very little blood makes a

very large stain, and a surprising amount can be lost without fatal consequences.

If these directions are carried out, and a doctor is called at once, there is no need of excitement and agonized alarm. Quiet is a safeguard, and a reliable physician will know how to act promptly and effectively, so that the danger will soon be over. Quiet a safeguard

Blood-poisoning is caused by the retention in the uterus of the "membranes," as they are called,—that is, the placenta, and the sac in which the child is carried. The uterus tends to contract after the expulsion of the fetus, and may close about these membranes, or a portion of them, instead of expelling them entire, as is general in normal childbirth. The danger of blood-poisoning

As soon as the placenta becomes detached from the uterine wall decomposition takes place, and the system soon feels the effect of the poison. It is for this reason that a doctor should be given the charge of such a case from the first. He will then make sure that the uterus is quite empty, and will order treatment to check the hemorrhage, and to prevent the possibility of the poison's being carried through the system. The cause of blood-poisoning

The douche ordered in cases of confinement is a spray of water carried up into the vagina, and this is generally necessary after abortion. If this spray is sent into the uterus itself, the physician always gives it, and he has special instruments for it, but often he wishes the patient to have a simple vaginal douche each day, and a member of the family may be responsible for its administration. The vaginal douche

A perfectly new fountain syringe, and a glass-point having three outlet holes, should be used. The temperature of the water should not be tested by putting the hand into the vessel containing it. A bath ther- To test the temperature of the water

mometer can be used if the solution is a disinfectant, and if plain boiled water is required, it is very possible after a little experience to test the temperature quite accurately, by pouring it over the arm. The douche-point should be boiled before using, and should be placed in the syringe tube just before the douche is given, and should not be allowed to come in contact with clothing, utensils, or any part of the body, before it is inserted.

Sterilizing the glass douche point

The hands of the attendant should be thoroughly washed before giving the douche or the bed-pan, or before changing the pads or bathing the breasts. All this applies equally in cases of abortion and of normal confinement.

Thorough washing of hands

Douching should not be given without a physician's orders. In many cases, Nature would remedy difficulties if she were left alone, and it is certainly possible that a continual use of the douche may tend to weaken the muscles and ligaments and to debilitate the tissues. It is better to be too conservative in this matter than to run the risks of making improper and too frequent use of the douche. After menstruation, it is entirely superfluous, for the process is a normal one, which calls for no artificial treatment beyond the simple external bathing which ordinary habits of cleanliness would suggest.

No douching without physician's orders

After a miscarriage, the same care should be given as is required after childbirth—as far as keeping the patient in bed, and taking precautions regarding cleanliness. But more than this, it must be remembered that the shock to the nervous system has been extreme, and that there is liable to be mental depression, which can be overcome only by great patience and by the speedy return to physical well-being. Often, when the birth of a child has been anticipated with great joy,

Care and precautions for cleanliness the same as after childbirth

the sorrow of loss is felt all the more keenly, because the little life went out almost before it was given; and the fact that the consciousness of motherhood does not follow, and crown the trial of pain and illness, is often never expressed, perhaps because it is felt so intensely.

All this only goes to show how nursing in cases of miscarriage should differ from that after normal delivery. Here the mother's mind is so filled with interests outside herself that her own ailments gain little attention, and nervous and mental disorders seldom need be reckoned with. After abortion, on the contrary, when the first danger is past, the mental state overshadows and governs the physical, and the courage and poise of the woman depend largely on the patience, tact, cheefulness, and versatility of those about her.

Care and sympathy with the patient's mental state

The period in bed will depend upon the condition of the patient, both physical and nervous. Sometimes when the depression is very marked and persistent, a doctor may allow her to get out of bed, in the hope that her interest will be roused. Ordinarily, however, it depends, as in the normal case, upon the state of the uterus—its position and the completeness of its contraction—and on the amount and character of the discharge.

The period in bed

PREMATURE BIRTH

During the last two months of pregnancy, a child is said to be viable; that is, it is possible to keep it alive outside the uterus. At the seventh month, the child is perfectly formed, the eyes are open, and the nails are present. The weight is between three and four pounds. The chief difficulty here is the care of the child—to keep it in an even temperature, to give it proper and sufficient nourishment, in fact to reproduce artificially

Care of the seventh-month child

some of the conditions of its life within the uterus, which should have been prolonged.

How the incubator works

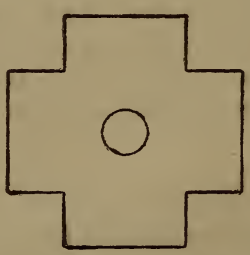
In the hospital, of course, the incubator is used. The heat supply is regulated so that it may always be the same, and hot water is the medium through which it is conducted, so that the lungs are given a proper amount of moisture. The baby lies in a chamber inclosed in glass so that he can be watched without being removed, and the air is kept at the desired temperature by artificial heat.

Home substitutes for the incubator

In the home, incubators are generally out of the question, but there are various substitutes which can provide approximate conditions.

How to make the baby's cotton suit

There should be no attempt to dress the baby in the regulation shirt, petticoat, and dress, because rest is one requisite to his welfare. A cotton suit can be easily made of cheesecloth, padded with lambs' wool or absorbent cotton. Cut out double thicknesses of cheesecloth and cotton in the shape of a Greek cross,



one having four equal arms. Bring opposite arms together, the cotton being laid between the cheesecloth, and the edges turned in, and sew over and over, all around, except at the ends of the arms of the cross. Now cut out a round hole in the centre of the fold, and a slit down from this hole to the lower edge. Finish

the raw edge, and you have a cosey little jacket, which may be sewed on and will keep the child much warmer than the ordinary garments.

Little bootees are made in the same way, using stockings for patterns. These are pinned to the edge of the jacket, or to the diaper. The little band and diaper are the only other garments necessary. The temperature should be kept as nearly uniform as possible, and as high as eighty-eight or ninety degrees. Any device which makes this possible may be used.

The other little garments

Necessary high temperature

A bed made in a clothes-basket and kept near a fire, with a hot-water bag on either side of the baby, answers the purpose. Two tin tubs, put together after the fashion of a double-boiler, with hot water in the lower one, is another arrangement which has proved a successful substitute for an incubator. A lamp placed underneath the tubs keeps the water hot, and the pillow on which the baby lies in the inner tub protects him from the direct heat of the metal.

Use of basket or tin tubs

CARE OF THE PREMATURE BABY

A premature baby should be disturbed as little as possible. No attempt should be made at bathing, but each day he should be oiled with sweet-oil, being kept carefully covered during the process, and a fresh cotton jacket should be put on every second day. The diaper should be changed as often as necessary, and the child kept absolutely clean.

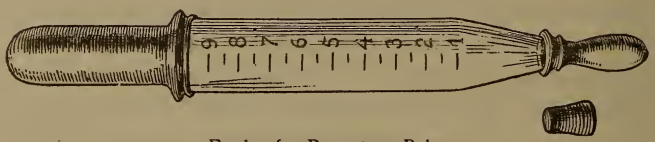
Oiling and changing

This can be done without taking him from the

Disturbing the baby as little as possible

bed, and in fact he need be lifted very little. He will have to lie on the nurse's lap for his oil bath, but all the changing can be done without disturbing him, and unless he nurses his feeding can be given him in his bed.

Some premature babies nurse with much strength, but more often they must be fed. If the mother's



Feeder for Premature Baby

milk comes into the breasts it should be pumped out and given the child either with a teaspoon or a medicine dropper.

GAVAGE AND LAVAGE

Forced feeding a simple process

Sometimes forced feeding through a stomach tube must be resorted to. This is called *gavage,* and should be done under the direction of a physician until the method is understood. It is really a very simple process, may be accomplished without disturbing the child, and will take a very short time if skilfully done. The apparatus consists of a small soft rubber catheter attached to a glass funnel.

Method to use

In giving the feedings the tongue is depressed with the finger, and the tube, moistened with oil or with water, is introduced quickly down the gullet into the stomach. Two or three inches is far enough. The funnel is then held up to allow the escape of gases; after which the milk is poured in and the tube quickly withdrawn. If this is rapidly done, there will be no vomiting.

Lavage, or washing the stomach, is generally necessary once a day. It should be done with boiled water. Method of lavage

The tube is introduced in the same way, and about a tablespoon of water poured in. Before it all disappears the funnel is lowered and the fluid is drawn off. The process is repeated till the water returns clear. If the finger is kept in the corner of the mouth for a few seconds after the tube is drawn out, vomiting is less liable to occur.

The tube and funnel should be washed carefully in water containing a small quantity of baking soda. The cleanliness of this apparatus is extremely important, because the lining of the stomach is so delicate that if any impurities were carried into it an inflammation would be likely to set in. The tube and funnel should be occasionally boiled. Absolute cleanliness a requisite

In caring for a premature baby one of the essentials is the belief and determination that he shall be kept alive. If warmth, nourishment, and rest can be kept up, the chances are good; but it is impossible to give proper care if the ultimate death of the child is believed to be a foregone conclusion. It is a difficult matter, and even with constant care, patience, and watchfulness it may be many months before the anxiety is removed, and the baby can be treated like a normal child. Determination to keep the baby alive an essential

SUPPRESSING MILK

In cases where the child is dead at birth, or dies soon after, there is likely to be trouble with the breasts unless precautions are immediately taken. The glands do not begin the secretion of milk until the second or third day, so that if the baby is still-born the treatment may begin at once. It is the When precautions should be taken

same in any case, except that before the milk is in the breasts they are less tender.

If the breasts are dusted with boracic acid powder, non-absorbent cotton laid between them, and a close bandage is put on so that even pressure is applied, there will be no danger of an accumulation of caked milk and subsequent abscess.

Putting on the Murphy bandage

The most satisfactory bandage is the "Murphy," which is shaped to fit about the neck, and is cut out under the arms. This should be pinned in front on

The Murphy Bandage

a straight fold from a point about half-way from the neck to the lower edge. Above this it may be turned in and made very close.

Below the middle pin on either side darts must be taken in, and the bandage thus drawn as tight as possible. The pieces over the shoulders are to be pinned last.

Its effectiveness and use

When the milk comes in, the bandage will, of course, feel uncomfortably tight, but this can be endured for forty-eight hours, when the pressure will begin to subside and the difficulty will be over. The bandage should be kept on for some time until all danger of further secretion of milk is past. If this method is used there is no need of external applications such as rubbing with ointments or painting

with iodine. If the bandage cuts the flesh about the arms non-absorbent cotton can be laid under the edge of the arm's eye.

If suppression of the milk is necessary after it has come into the glands, the same treatment is effective, but it is likely to be rather more painful, because of the pressure applied directly on the already distended breasts. It is, however, certainly the simplest method, although the various applications may be used with success, and with no complications.

When milk has come into the glands

If the bowels are kept freely open with salts, and fluid diet is restricted, the milk will come into the breasts less freely.

Diet

MILK-LEG

Since abortion represents an abnormal condition, we have included under it some of the diseases which sometimes complicate the pregnant state.

Difficulties with the breasts may arise after a full-term confinement, and the condition known as milk-leg has no particular association with abortion, though it has place in this chapter. This trouble received its name because it was ignorantly supposed that it was caused by an actual accumulation of milk in the leg.

It is a condition occasioned by a clot of blood which is formed in one of the veins. The presence of the clot causes inflammation of the vein, which gives it one of its various names—phlebitis. The local inflammation has a still more remote cause, which is now generally believed to be a mild infection from some micro-organism.

How milk-leg is occasioned

It may follow unusual difficult labor, or sometimes occurs after operation or after abortion, particularly if the membranes have been retained within the uterus. It generally begins within two or three weeks after

labor. The pain is usually localized at first, either in the hip or ankle, but soon extends. There is often a chill, followed by fever, and the lochia, or discharges from the uterus, begin to have an offensive odor.

The symptoms of milk-leg

In a very short time, the leg commences to swell, and the power in it is almost entirely lost, while the pain is extremely acute. It is generally not a dangerous condition, but it is a very stubborn one, for even after apparent recovery there is a tendency to a recurrence of the swelling for weeks or even months.

The leg should be given entire rest, should be elevated on pillows, and moist heat should be applied. Compresses of flannel, wrung out of a solution of witch-hazel and water in equal parts, applied as hot as the patient can bear it, are very effective.

Treatment of the trouble

Gentle rubbing was formerly recommended to produce absorption of the clot, but that is a dangerous process and should always be avoided. If the clot is dislodged by the friction, it may pass along the vein to a locality where it may do still more harm. Local applications to promote its absorption may be suggested by a physician, but anything like massage is not advisable. The rest and the elevation of the leg should be continued until the trouble is entirely corrected, and a close bandage or elastic stocking is useful when the patient begins to walk, to prevent the swelling which is inclined to reappear.

No rubbing or friction

INEXORABLE LAWS OF NATURE

Abortion produced by medicines, which bring about contractions of the uterus, or by instruments, ranks of course with malpractice when a physician is responsible for it. The moral significance of the act seems to make little impression upon the number of women who refuse to accept child-bearing; but they

The moral significance of producing abortion

must realize in time Nature's inevitable retaliation for violation of her laws in the weakening of physical vigor and nervous force. There is always the question which is the greater sin, to bring a child into the world—to force upon him a life which must of necessity be starved and cramped—a possibility which gives malpractice its opportunity—or to crush out that life almost at its conception. Of course, the sin goes further back than this, to the rights of parents to take the responsibilities of child-bearing, unless they are willing to make good—to give to their children the chance to choose what they will do with their lives.

A child ought to be assured of the right to childhood, free, untrammeled, with sunshine, fresh air, and loving care; he ought to have the promise of food, shelter, and clothing, reasonable health and education enough to fit him for the work of life. The right of every child

But with Nature, this question of the greater sin seems not to be considered. Her laws are disobeyed when the life once begun is interrupted, and she metes out her punishment inexorably. The penalty is absolutely sure. If the functions of the generative organs are interfered with, weakness, if not disease, results, and a woman becomes nervously broken down, more surely than if she had gone through the period of pregnancy and childbirth. An absolutely sure penalty

VII

HABITS ARE METHODS OF TRAINING

Law of Habit—Unwise Training—The Day's Routine—The Baby's Laundry —Details of Bath—Naps—The Outing

LAW OF HABIT

What the baby does not "already know"

WE often hear mothers say that the baby of two weeks "already knows" that he can force her to indulge him, that he can make her walk the floor with him, or nurse him whenever he cries. Perhaps if she understood better just what that seeming keenness of knowledge is, she would be more willing to endure the little vexations of the moment for the sake of the added comfort of the years. It is not dawning intelligence that makes the baby cry till he is taken up, and stop when he is soothed in the mother's arms, or borne about over a comfortable shoulder. It is simply that law of our nature which has caused most of our oft-repeated acts to grow mechanical, which makes it possible to carry on the daily occupations, like dressing ourselves, eating our meals, and going to our work, without being obliged to concentrate our minds upon them.

Making good habits permanent

Habits are formed before there can be conscious thought, and habits that help the child and the mother are as easily established as those that make the baby a tyrant in the home. Each time an act is performed, the chain of associations is made a little stronger, and under the same conditions the same result is more likely to be reached. It may take many trials to make permanent some of the habits that one is working for,

especially if the baby is not perfectly normal in health, but mothers as well as nurses have proved that it can be done.

The old bringing up versus the new

Mothers who have come under the influence of our grandmothers' theories concerning the "bringing up" of children, sometimes feel that the modern idea that we should help Nature by supplying fresh air, sunshine, good food, and plenty of sleep, and after that let the child come up rather than be brought up, indicates a heartless classing of the human young with the "beasts of the field." To such a person the care of a baby signifies the entire absorption of a mother's time and strength, and often the depth of her devotion is measured by the extent of his tyranny.

Long hours of sleep and natural exercise

If she could only realize that it means a mutual benefit to accustom the child to long hours of rest to body in sleep, and to nerves and muscles through normal expression of his activities in natural exercise, she would have fewer qualms of conscience in enjoying the added leisure it would give her. A baby will find endless entertainment in the free movement of his own limbs, if not hampered by clothing, as he lies in his crib, unless he has been trained to cry for the artificial exercise and the stimulation of constant change of position.

Food at stated intervals

For the first few months, sleep should make the largest part of his day. This can only be accomplished if he is kept comfortable as far as his other demands are concerned. Food is the chiefest, and if this is given when it is needed, it will take little time, and will be expected only at stated intervals. Warmth is another requisite, and can be realized if the temperature of the room is well regulated, the crib is protected from draughts, and the diapers are changed often enough to keep the dampness from the other clothing.

Guard the baby from nervous shocks

Great care should be taken to guard the baby from shocks to the nervous system. Fear is not yet developed, there is no reason in his sudden cry and start, but the little body is alive with nerves, and every time these are played upon uselessly they are so much more easily affected and less likely to perform their greater function. We see the results, not in added sensibility, but in lack of control and poise, in little reserve force, and often in an excessive emotionalism.

Letting the child develop along Nature's lines

The aim of motherhood ought to be to bring forth at least as good a representative of the species as either of the parents, and after birth to give the care which will bring about at least as perfect a development. The animals of other species accomplish this, but the human animal fails of it time out of number, and too often has no sense of obligation in the matter. If obligation is admitted, it must also be conceded that we could perhaps learn from the methods of animals in caring for their young, that the best results are not attained by surrounding a child with artificialities, and by keeping his senses abnormally alert, but by letting his development progress along Nature's lines.

The number of babies who are allowed to go through babyhood as little happy animals, with every want gratified when they are clean and warm and fed, is increasing every year, but there is still an appalling amount of ignorance and well-intentioned cruelty in their treatment.

UNWISE TRAINING

If we follow a baby brought up in the latter way through his day, we can see why he is a troublesome child, and can appreciate better, perhaps, the rational method of caring for him.

In the morning, when his first day feeding is due,

he is asleep, and the mother, thankful for a little respite, hushes the other children and lets him lie quiet as long as he will. Stomachs only a few days old hold very little, and after a long fast this one begins to make active remonstrance. Up comes the baby, wet and starving, showing such signs of indigestion that the mother at once gives him food in self-defence, and pushes on bath and clean, dry clothes for an hour or so longer.

The baby's morning in bad training

The milk is taken so rapidly, and the stomach is filled so full, that instead of going off to sleep, the little one fusses and cries till life is a burden to the entire family. He is trotted and rocked, a rubber nipple, a "pacifier," is put in his mouth, or an attempt is made to nurse him again, till the process of digestion has corrected some of the discomfort, when he falls asleep.

How he is fed

When he wakes again, the dampness from his wet diapers has penetrated through all his clothing, and he is either steaming or cold, and must inevitably be chilled when he is taken out of his nest for his next feeding. His bath soothes him so that he sleeps for some hours, and a repetition of the empty stomach and the cramps from greedy feeding follow.

His sleep and bath

So the day passes with frequent periods of crying, with irregular feedings, with much handling and with discomfort on the part of both mother and baby. The night brings little sleep, for the feedings have been given at such long intervals that the night's rest is as broken as the day.

The really pernicious thing about such a scheme for the baby's life is that it is not confined to the early months. It can not help making its influence felt through the years. The stomach will not fulfil its duty in after life if it is alternately starved and over-

Pernicious effects of bad training in after life

loaded at first, and the nervous system will demand variation, excitement, and indulgence if these things are supplied in babyhood. That means that the nervous force will be exhausted, and can not be depended upon in time of need.

The keynote of a baby's existence

Serenity ought to be the keynote of a baby's existence. Through childhood, we are supposedly preparing the body to meet the requirements of adult life, and whatever handicaps the organism for future usefulness, whatever exhausts, rather than builds up, is distinctly working against that end.

The deforming effect of the "pacifier"

Few mothers understand the really harmful effect of the "pacifier" or nipple, which a baby is allowed to keep in his mouth between his feedings. The constant use of such an apparatus is almost sure to deform the jaw, which means difficulties when the teeth begin to come, and also a condition known as mouth-breathing, which may be responsible for many ills of throat and lungs. If teeth are overcrowded, as they must be when the jaw is misshapen, they are much more liable to become decayed.

How it misshapes the mouth

It is an easy matter to pick out from a group of children those who have been allowed to suck empty nursing bottles or the regular nipple. The upper-lip is swollen and protruding, the under-lip recedes, and unless the habit has been outgrown for some time, the child generally drools when he has not the nipple in his mouth.

Ill effect of breathing through the mouth

When we breathe normally, through the nose, the air is warmed and filtered before it reaches the lungs. The impurities are largely sifted out in its progress through the nasal passages, but when it is taken in directly through the mouth, all the dirt and the germs of disease have much freer access to the lungs, so that the danger of infection is greatly increased.

This ought to have weight, even if the unsightly appearance of a child whose mouth has been so deformed has no influence with the mother.

THE DAY'S ROUTINE

There can be a routine order in the care of the child which becomes habitual and saves much labor.

Hours for feeding a baby under six weeks

He should be taken up for his first feeding at about half past six, and for six weeks food should be given every two hours, until half past ten in the evening. One feeding between this hour and morning is enough. He should be allowed to nurse for twenty minutes, but should be kept awake and busy during that time.

Definite time for the bath

Generally the mother can arrange a definite time for the bath, and can give it at about the same hour each day. It should come between the feedings about an hour after he has nursed, and is given preferably in the forenoon.

Wake the baby for his feedings

The baby should be waked during the daytime for his feedings. There is a temptation to let him sleep, but he requires a certain number of ounces of food during the twenty-four hours, for the proper nourishment of his body, and it is far better for him to get this largely between six and ten, leaving the night for unbroken rest.

The hours of his meals should be absolute. A baby's cry generally means something, especially if he has been properly treated from birth, but it more often means over than under feeding, and while putting him to the breast may silence him, it does not correct the trouble, but only makes it more liable to occur again. He requires water as well as milk, and should have a teaspoon of it three or four times a day.

Give him water three or four times a day

The crying may be caused by thirst or by colic

His crying

pains from gas in the intestines. This latter difficulty is especially frequent when the mother is taking cathartics. The warm water may relieve this, or turning the baby over on his stomach and rubbing his back often sets the gas in motion and thus gets rid of it. Very often holding a baby in front of a fire and warming his hands and feet will stop his crying and will relieve pain. If colic seems to recur at about the same time each day, a thorough toasting and rolling the child in a heated blanket will sometimes act as an effective preventive.

Treatment for colic

Some babies cry when the diapers are wet, and they should always be changed when the feedings are given. If wet or soiled napkins are left on the delicate skin becomes chafed and there is further cause for uneasiness. If the precaution of frequent changing is observed there will probably be no trouble of this sort, though sometimes if there is diarrhœa there is an unavoidable irritation of the skin.

Treatment for irritation of the skin

Bathing with a solution of boracic acid tends to heal the chafed surface, and if stearate or oxide of zinc or bismuth subnitrate is used to powder the buttocks after the bathing the condition is quickly relieved. Talcum powder is all that is required ordinarily, but the zinc has particular properties of absorbing water which makes it of especial use when the skin needs particular care.

Talcum powder is of equal service in the case of an adult invalid, especially when there is difficulty in retaining the urine or excessive perspiration, so that the skin in the crease between the buttocks is inclined to be moist. It has no tendency to become caked, but it should not be put on thickly, and should always be washed off when the parts are dressed.

Similar treatment for adults

Having then looked after the diapers, having

made sure that the clothing is not creased uncomfortably under him, and that there are no pins unclasped and pricking him, having given him water and changed his position in the crib, he may safely be let alone and allowed to cry for a time without fear of injury.

Points to look after when a baby cries

A mother soon learns to distinguish the character of a cry, and can also tell by the position the child assumes whether it is caused by pain. If he draws the knees up against the abdomen and holds them there it generally indicates colic, while in temper he usually stiffens his arms and legs and makes his back rigid. If a child is really delicate, not normal in health, it may easily be impossible to follow the usual rules in his training, but more babies are made abnormal by unwise treatment than by inherited tendencies.

Character of the baby's cry and his position

We will suppose that the bath is given in the middle of the forenoon. The rest of the day is unvaried till late afternoon.

The baby is undressed and put into his nightclothes just before the half-past four feeding. If the room can be made warm enough it is a very good plan to let a baby tumble about on a big bed, dressed only in his diaper and shirt, for fifteen or twenty minutes at this time. He will enjoy the freedom, and after a few months he will begin to make efforts toward co-ordinated motion.

When the baby is undressed

He will especially enjoy lying on his stomach and kicking very hard against a hand held at his feet. Movements of this kind, the self-expression of his activity, are helpful in the development of the child, while trotting, tossing, or walking the floor with him are purely pleasurable excitements which retard rather than increase his ability to depend on his own resources.

Baby's gymnastics

Let his diversion be along natural channels

A baby does not need to be amused if his interests are helped along natural channels instead of being diverted into artificial ones. When he is old enough to sit up in his crib or on the floor, a simple toy, or often investigation of his own hands and feet, will keep him busy and happy, and later the discovery of the use of his muscles is a joy the sweets of which we can not appreciate because we have lost it from our memory of babyhood delights.

We have lost the child's point of view

We make trouble for ourselves in our care of children. We take from them simple pleasures in the way of physical activities because we are "Olympians" and have lost the child's point of view, and we offer substitutes that seem desirable from our standpoint, which require our co-operation and which do not at all represent a child's original interests.

Excess of toys unfits a child for the work of life

An over-abundance of toys and of devices for the entertainment of the child means dissipation quite as surely as over-indulgence in any other variety of luxurious living, and the results educationally are almost as pernicious as those of the latter sort are physically. It is unfitting a child for the work of life.

The day's schedule

The day's schedule then would be as follows: At half-past six the baby gets his first feeding of twenty minutes, is changed and laid down again. At about half-past nine the bath is given, and he is dressed clean and fresh for the third meal at half-past ten. The afternoon routine is unvaried, nursing him and keeping him dry being the rule, alternating with an occasional drink of water and a change of position. Between four and six comes the preparation for the night, and the little frolic on the bed.

The body has not been disturbed by unnecessary handling, the nerves have not been unduly stimu-

lated, the physical needs have been satisfied, and neither mother nor child is nervously wearied by the end of the day. If the feedings have been regularly given, the dark and extra quiet will tend to make the baby sleep in longer intervals during the night, and the mother can get her much needed-rest.

Why the baby will sleep well

A baby needs fresh clothing each day, especially the bands and shirts, which come next his body. Sometimes a slip and petticoat may be used a second time if they are taken off at night and carefully aired.

Changes of clothing

THE BABY'S LAUNDRY

The shirts are very easily laundered, and it is advisable to wash them out as they are used. If diapers, shirts, and dresses accumulate it seems much more of a task to get them out of the way, but if they are done each day as they are taken off it is a very simple matter.

Simplifying the laundry

The device of putting small squares inside the diaper to receive discharges from the bowels makes more pieces to wash, but also makes the washing easier. As soon as the diaper is taken off, the solid matter on it should be rinsed off under running water, and the cloth should be put to soak. Absorbent cotton can be substituted for the small squares, and can be burned; this is an additional expense, though a small one.

Soiled diapers should never be put on a second time, and it will take only a few moments to wash them out as they are used. The odor becomes very offensive if they are left, even when they are covered with water, and they are more objectionable to handle.

Washing the diapers

DETAILS OF BATH AND NAPS

The daily bath may seem like a burden, and is even regarded by some persons as unnecessary, but

Comfort and health of the skin

when the added comfort of the child is considered, its value must be admitted. Added to this, the same reasons that are given for frequent bathing in the case of a grown person obtain when applied to the baby. It is a question of keeping the skin in healthy condition, and this can be done only by cleanliness.

Especial care should be taken to guard against draughts. The room should be warm and of even

Bath Under the Blanket

Guard against draughts in bathing

temperature, and sunny as well, if that is a possibility. There is little danger in the exposure of a baby's body if the surrounding air is warm, though for the first few days the bath should be given under the blanket, and for several weeks the baby should not be long uncovered. It must be remembered that his mode of living has been radically changed by his

birth, and the shock of the adjustment must be tempered as far as may be.

When the first tub-bath is given the shock to the nervous system caused by the plunge into water is made much less if the child is put into the water with a clean diaper wrapped loosely about him. It can easily be removed from the body and allowed to lie in the bottom of the tub, where it will not interfere in the least with the bath.

How to put the baby in his tub

Attention to nose, eyes, and mouth should be systematically given, even if there seems to be no especial apparent need. The boric solution strengthens the eyes, and makes them less liable to inflammation when the child catches cold. Washing the mouth is more rather than less important as the child gets older, for the preservation of the teeth depends on cleanliness.

Attention to nose, eyes, and mouth

If it is possible the baby should take his naps in a quiet, darkened room. We can not be sure what impressions are being made on the sensitive nervous organization, nor how much consciousness of the noise of talking and of the presence of numbers of persons in the room exists, but we do know that there must be more complete relaxation when these conditions are not present, and that beyond this the habit of going off quite alone at nap-time is a valuable one to establish.

Naps should be in a quiet, darkened room and alone

At first life is a series of naps, with incidental wakings for food, but later there will be, of course, longer periods of wakefulness and fewer hours in the daytime to be spent in the quiet of the nursery.

THE OUTING

A baby should have regular out-of-door exercise after the first four or five weeks. In winter the

Hours to choose

outing should be made in the middle of the day, either just before or just after noon. In the summer early morning and late afternoon are the safest times.

Dress for the outing

In winter the baby should be thoroughly warm before he is taken out, and should have plenty of thick wraps. Especial care should be taken to have his hands and feet warm, for it is by exposure of the extremities that colds are contracted.

Substitute for the outing

If the weather is too severe or stormy to risk the out-of-door exercise, an indoor substitute may be used. Dress the baby warmly, put him in his carriage or on the bed, and open all the windows of the room where he is sitting. Draughts must be avoided, but plenty of air must be admitted, and the danger of catching cold is no greater than it is out of doors.

Summer out door life

In the summer children should be kept in during the middle of the day. In the morning the air is fresh and will be good for them. In the country it is often possible to keep the child out for the entire day, but in the large cities the pavements and unshaded streets become so hot that it is not only unpleasant but not safe to leave children out through the heat of the day.

Summer in the city and parks

If a park or playground is accessible never keep the children in the streets. Let them spend their outing under the best possible conditions. The fresh air, the lack of dust, the restfulness of green grass, and the shade of trees are important factors which make for health, and the mother will be repaid twofold for the little extra exertion of dressing and taking the journey, long or short, both by added serenity of temper and by comfort of body. Go home before the sun is too hot, and give the baby his

bath, after which he ought to sleep through the mid-day hours.

Do not make the mistake of keeping too many clothes on him. If he is kept from draughts he may dress very lightly in the hottest days. The abdomen should be protected by either the flannel or knitted band, since the dread disease of the summer months is cholera infantum. If the band is worn the regular shirt may be discarded in the hottest weather. Changes in temperature must be observed, however, and the necessary addition in coverings must be promptly made. The flannel nightgown gives place to the cotton slip, and even the flannel skirt may be shed for a few hours in the day when the weather is oppressive.

The baby's dress in hot days in town

Late in the afternoon or early in the evening, if it is possible to get another breath of clean air that has blown through the trees or from the water, instead of along dirty city streets, the night will be more restful because of it.

The prejudice against night air has been pretty thoroughly overcome as knowledge of the principles of right living and of the needs of our bodies has increased, but there are still many persons who are inclined to shield the baby from the fancied ills of night dampness and to oppress him with the serious danger of exhausted air. He must not be given used-up air to breathe. Even more than those of grown-up persons must his lungs be supplied with oxygen to feed the blood.

Night air is the only air at night to breathe

It is always the direct draught that is dangerous. The crib can be thoroughly protected and the baby can be kept warm even more easily than a grown person. It is a very good plan to have little straight curtains of stout muslin made to fit around the head

How to keep the baby from draughts

of the crib, and to tie on the bars with tapes. A piece about eight inches in width may also be stretched across the top at the head, shielding the baby's eyes and more effectively protecting him from draughts of air.

The simple life the best life

This is the simple life that best suits a baby's needs. The routine of it soon makes it the easiest from the mother's standpoint, and if it is persisted in all the details become matters of habit, and their accomplishment less and less of an effort.

PART III

CARE OF CHILDREN

I

INFANT FEEDING

Mother's Milk—Weaning—Cows' Milk—Modification of Milk—Prepared Foods—Points to be Noted—Schedule for Feeding—Household Measures

WE may divide the subject of feeding for children into three parts, following the plan suggested by Dr. Rotch. The first period would extend over the first ten or twelve months; the second, over the second or third years; and the third would include the remainder of childhood. Three different periods of feeding for children

The first period is the most important and is the only one where milk supplies the entire nutrition.

MOTHER'S MILK

To say that mother's milk is the ideal food for a child states a self-evident fact. Every one knows that it is the natural food, and that the child thrives on it, but sometimes it does not seem to be generally understood that it provides to a degree really unattainable otherwise the properties that are needed for his growth and development. The ideal food for the baby

The most logical substitute for maternal feeding would seem to be the wet nurse, and in our grandmothers' days that was the first resort, though it was too often a questionable good on account of lack of thought in the selection, the fact that a woman had an abundance of milk being often her only recommendation. The wet nurse

The existence of disease, or indeed the negative

Requisites in a wet nurse

condition of poor health, or an excessively emotional temperament, however it may manifest itself, should debar a woman from taking up the duties of a wet nurse. She should be in a thoroughly normal state, her confinement should have been as nearly as possible on the same date as that of the mother engaging her, the amount of her milk should be ascertained, and if it can also be analyzed it will add an element of surety to the result. She should be, if possible, between the ages of twenty and thirty.

Substitutes for mother's milk

The advance of scientific interest in the modification of cow's milk for infant feeding and the numbers of patent foods on the market have made the employment of wet nurses much less common than it once was, and because it is true that children are successfully nourished and become healthy and strong on one or another of the prepared foods, we are inclined to lose sight of the fact that Nature's provision is the economical one, and that, other things being equal, mother's milk supplies most satisfactorily the demands of the system.

At birth

There is generally a substance present in the breasts at the birth of the child which acts in the nature of a physic upon him, and which rids his bowels of the black, tarry substance which fills them. It should also be nourishment enough for him until the regular supply of milk appears, which is usually the second or third day.

Effect of first sucklings

It is well, however, to put him to the breast at regular intervals so that he will learn to draw on the nipple, and also because the act of suckling tends to produce contractions of the uterus. After the breast begins to secrete milk, the feedings should be oftener and from alternate sides, so that the fulness may be relieved.

Sometimes, particularly if the breasts have had no treatment before confinement, the nipples become cracked and extremely painful. This condition may be guarded against by the avoidance of pressure over the breasts, and by particular cleanliness before delivery.

Regular treatment of the breasts

The regular treatment of the breasts after the child is born should be bathing with boracic acid solution after each feeding. The special treatment for chapped or cracked nipples has been given on page 248.

Effect on mother's milk of mental condition

The physical and the mental condition of the mother has its effect on the milk, and hence on the baby. Moodiness, worry, and despondency seem to affect the quality of the milk almost as much as lack of physical tone.

Medicine, food, alcoholic drinks

Medicine taken by the mother acts indirectly upon the baby through the milk, and the food of the mother has to be especially chosen with regard to the baby's diet. Alcoholic drinks are not advisable, but milk, cocoa, and gruels help to increase the supply of milk and should be taken in preference to tea or coffee.

A necessary care

Cereals, eggs, meats, and vegetables, whatever would constitute the normal diet, is allowable for the nursing woman, but she should be a little cautious about eating green vegetables or fruits, and should also be very careful to keep her bowels regulated.

The mother's milk supplies a power of resistance

If a woman keeps herself in good physical condition she will have enough nourishment for her child, and if the child is well nourished with a food that meets his needs, he will be able to pass through the difficult periods of teething and the heat of his first summer with much less danger. This is the reason why the mother's milk is so far superior to any arti-

ficial preparation. It seems to supply a power of resistance that is often lacking in other foods, and which tides the child over the illness of his first year.

When the quality of the mother's milk is impaired

There are, to be sure, conditions enough which warrant, even demand, that the baby shall not be put to the breast. If illness has impaired the quality of the milk, or if the disease is such that it may be communicated in this way, a woman is entirely unfitted for nursing her child. If the mother has an excitable temperament, is unhappy, or reluctant to take up this duty, if she is extremely busy and does not take regular rest and sleep, the milk will probably be so poor in quality that it will not be proper nourishment. If, on the other hand, the nursing is too much of a drain on the mother's health, it is better to suppress the milk altogether.

Sometimes the conditions are such that they can be corrected, and a strict observance of hygienic laws on the part of the mother will sometimes restore the milk to the normal standard.

WEANING

When a child may be weaned

There is probably a tendency to nurse a child for too long a period. He should be weaned at ten months unless he is not well at this time, or it comes in the heat of the summer. For the sake of both mother and baby it is well to begin bottle feeding before the child is weaned.

Beginnings of the feedings

At four months one bottle a day may be given, at six months two bottles, from eight to ten months three bottles, and between ten months and one year the baby should be weaned. The drain on the system of the mother is very great; and to be relieved even of one feeding during the twenty-four hours means a little saving.

In some cases it happens that there is an oversupply of milk, when it may seem almost necessary to keep the child at the breast, but more often we find the milk growing less after the first few months. Even if the quantity of milk remains sufficient, analysis of the quality would probably show that it was far below normal, and the tissues of the child would soon feel the lack. It must be remembered, besides, that even normal mother's milk is not suited to his needs after he has passed the age when Nature has arranged for that supply to be withdrawn.

In case of an oversupply of milk

In cases where there is an overabundant supply of milk at the time of weaning, it can be disposed of and the breasts dried up without any danger of caking. The breast-pump seems to stimulate the glands, but it has been found that a layer of rubber tissue laid over the breasts, and held in place with a light bandage, draws out the milk, and dries up the breasts without any difficulties. It should be moistened frequently in water, and kept scrupulously clean. With this treatment the breasts remain soft, there is no pain or discomfort, and the supply of milk is gradually suppressed.

Suppressing the milk with rubber tissue

Another reason why the occasional bottle feedings are advisable is that in this way we accustom the baby gradually to an artificial food, and can settle upon something which agrees with him before he is dependent upon it alone.

A reason why occasional bottle feeding is advisable

The actual weaning generally means a struggle, but it will be a very short one if the baby has become somewhat accustomed to the bottle. After he has cried himself tired once or twice and has found that he is not put to the breast, he becomes reconciled to the new method and accepts the altered conditions. A baby is a good deal of a philosopher, but he insists

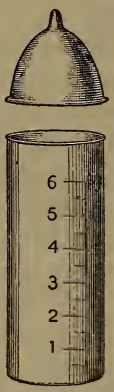
In actual weaning

upon making sure that existing ills can not be cured before he is willing to endure them.

One of the difficulties of bottle feeding is the care of utensils. These include the receptacle for the milk or food, the nursing bottles, and the nipples.

Advantages of the "Hygeia" nursing bottle

The safest bottle to use is the "Hygeia," which has straight sides and a mouth about an inch and a half in diameter. It is as easily cleaned as a cup or glass, has no angles which are out of reach, and no creases where milk can collect. The nipple, instead



"Hygeia" Nursing Bottle

of being a long mouthpiece, has more the shape of the breast, as it is a curving cover of rubber with a small elevation in the centre. In buying, care should be taken to choose one having a small hole in the nipple, for if the milk comes out too freely the baby's stomach can not dispose of it easily, and it is liable to form large curds which are often vomited.

The bottle should be rinsed at once after the feeding, and the nipple carefully washed in cold water, rinsed with hot, and put to soak in a solution

of borax or baking soda—a pinch of either—in a cup of water. Once a day the bottles and nipples should be boiled after washing in hot soap-suds, and they should always be rinsed with hot water immediately before use. Improper care of the nursing bottles or in the preparation of the food is responsible for most of the cases of summer complaint among children.

Especial care of the nursing bottles

COWS' MILK

The first choice among foods is herd's milk. It was formerly considered that the milk of one cow should be chosen, but so many calamities followed in the way of accident to that particular animal, the drying up of her milk, or the appearance of disease, that it is now believed safer to depend on the milk from a good many cows.

Herd's milk

It should be put up in bottles at the dairy and delivered unopened. Grocery milk should never be used for children, for no fluid accumulates and supports germs more readily, and it is constantly exposed to impure, dirt-laden air.

Bottled at the dairy

In large cities milk may be purchased from laboratories, where it is not only bottled under sanitary conditions, but is afterward sterilized or Pasteurized. At such laboratories it is also possible to have milk especially modified in accordance with any formula that a physician may write out.

Modified milk

The essential, however, is that it is put up in clean bottles at the dairy, and is not delivered from a general can, which is opened and disturbed innumerable times during its journey.

MODIFICATION OF MILK

A few words must be said upon the scientific modification of milk, because it is by far the most

rational method of feeding children, though its expense and the fact that the large laboratories are principally located in cities, put it at present quite out of the reach of the majority. The problem that is presented is to find a food that copies in every possible detail the fluid that the baby at the breast normally receives. The analysis of average human milk is taken as the basis of the changes that are necessary, and the resulting food must be, besides, fresh, sterile, of body temperature, and furnished in amounts varying with the needs of the child.

Problem of finding a food that copies mother's milk

The modification is carried on in laboratories provided with special apparatus, and is under the direction of scientists, who prepare the milk in accordance with definite prescriptions sent them by physicians. The physician can in this way use his judgment about the formula which will best suit a child's needs, and in illness can vary the food, knowing that it will be prepared with the same exactitude that his medicines are in the hands of the druggist.

Modifications in accord with physician's prescriptions

This is without question the ideal method of food preparation, but because it can not be attained by numbers of mothers living in towns remote from the laboratories or by equal numbers who are unable to bear the expense, careful feeding need not be considered out of the question.

Other ways of careful feeding

Sterilization can be accomplished by putting the bottles of milk into water which is raised to the boiling point and kept there for an hour. It is now considered that milk subjected to such a process loses some of the qualities that the tissues of the child require. For this reason Pasteurization is the method commonly employed. This is slightly more complex, because it means that the milk shall remain at a temperature not exceeding 167° F. for half an hour. It

Pasteurization preferred to sterilization

is well to prepare the milk as is desired, pour it into bottles, and Pasteurize enough for the twenty-four hours' feedings.

Cows' milk varies enough from the mother's milk so that a certain modification is necessary to suit the baby's stomach. It is heavier, has more solids, less sugar, more fat, and much more albumen, so dilution will not accomplish a proper modification. Home modification has been made possible by the manufacture of an apparatus which can be obtained for four dollars at the Walker-Gordon laboratory in Boston, Massachusetts, or Freeman's Pasteurizer, which may be found at shops dealing in hospital supplies.

Home modification

The chief essentials in the preparation of milk are, first, that the cleanliness and health of the herd of cows shall be assured; second, that the precautions in regard to the care of utensils shall be observed; and third, that the Pasteurization shall be conscientiously carried out. These points can receive attention whether or not the modification follows a physician's formula, is carried on in the laboratory with complicated apparatus or at home with the simplest appliances.

Essentials in modifying the milk

Jars to set the milk in, generally those in which it is delivered, bottles to hold it when ready to Pasteurize, a thermometer, a graduate glass to measure ounces, and cotton wadding, which makes the best stoppers, are the necessary articles for an outfit.

Articles necessary in modifying

A tin pail or dish can be fitted with a perforated plate to hold the bottles upright, and this is quite successful for Pasteurization. The water in this dish should be at a level with the milk in the bottles. It should be cool when they are put in, and should then be brought to 167° F.

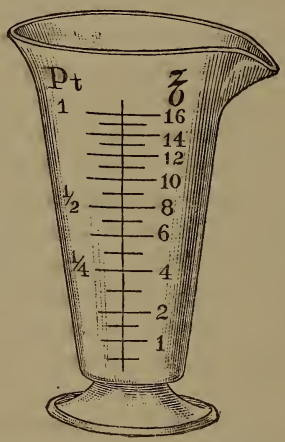
It is possible to test the water with the thermom-

Keeping the water at the right temperature

eter till one learns where the dish must be put to hold that degree of heat for the required time. Sometimes the heat of the back of the stove is necessary, and sometimes if the pail is wrapped in a blanket and removed from the fire entirely the temperature is maintained.

After the process is completed

After the process is completed the bottles should be set in a cool place, and kept there till they are used. They should be the regular nursing bottles,



A Graduate Glass

and the milk should not be poured out to be warmed. When it is ready for the child the rubber nipple is substituted for the cotton stopper. If the entire contents is not taken at a feeding the remainder must be thrown out.

A formula for modifying milk

If no attempt is made to feed the baby by a strict analysis of his needs and a doctor's prescription for the modification of the cows' milk, what is known as Meig's mixture is a very good formula to follow. This

consists of one part milk, two parts cream, two parts lime-water, three parts sugar-water. The sugar-water is made by adding two heaping teaspoons of sugar of milk to a pint of water.

This formula supplies in a general way the differences we find between the mother's and cows' milk.

Mother's milk more easily digested than cows' milk

Another fact to be taken into consideration is the way the milk is affected by the digestive fluids in the stomach. The mother's milk, in the process of digestion, curdles in tiny flakes, while that of the cow tends to form hard, solid curds.

Sanitary and other precautions for the easy digestion of cows' milk

This difficulty may be overcome in part if the hole in the nipple is made very small, or if a bit of sponge or absorbent cotton is placed in the top so that the baby will have to pull with some effort and will get the milk by the drop instead of in a steady stream. If this device is used great care must be taken to keep the sponge clean. It must be thoroughly washed each time, and often replaced. The absorbent cotton is safer because it is thrown away each time.

Twenty minutes the baby's feeding time

His feeding ought to last twenty minutes, and with the ordinary nursing bottle he will generally take the necessary amount in half the time, while the breasts secrete enough between feedings so that it will require that amount of time for a baby to empty them.

PREPARED FOODS

The prepared foods lack uniformity

There is no question about the superiority of cows' milk over the various prepared foods. The difference in price should not be considered, because it will be paid back many times over in the increased strength of the child. The preparations made on so large a scale lack uniformity, and deviate somewhat from year to year. The percentage of sugars and fats is estimated

on the product as put on the market, but after dilution for the infant's feeding, there is great danger that there may not be the proper amount of nutriment for his needs.

Scientific modification of cows' milk a better food

At all events, a scientific preparation of cows' milk with regard to the age, digestion and development of a child must of necessity be a superior food, and the home modification as well furnishes a better quality of nutriment. It is too often a question of the ease of preparation which is responsible for the choice of one of the patent foods as a substitute for mother's milk.

The number of these foods on the market is almost beyond conception. It is very difficult to choose between them, and quite impossible to make any statement that a baby will thrive on one and will not on another. If it is impossible to get good herd's milk, or if for some reason its use is not practicable, one of these preparations must be tried, and it is far better to begin such experimenting while part of the nourishment still comes from the mother.

If the prepared foods must be used

Condensed milk and its care

Condensed milk is advocated by many authorities, and in many cases it seems to be an ideal food. Its preparation, with boiled water, is simple, and it is easy to obtain and to preserve, which makes it especially valuable in summer. If it is used, the can should never be left exposed to the air, but should be kept in the ice-box or a cool place, with a tightly fitting cover over it. In the process of condensing one of the important constituents of the milk is lost. This is concerned in the formation of bone tissue, and is one cause for rickets in babies who are fed exclusively on it. For this reason, the question arises as to whether it is well for the baby to be kept altogether on this food. It also seems sometimes as if a condensed milk baby had less re-

Loss in element which makes bone tissue

sistance and succumbed to illness more easily than one fed upon cows' milk.

POINTS TO BE NOTED

If a baby has to be brought up on a bottle, and the first food chosen does not seem to provide proper nourishment, experiments will have to be tried, and this must be done with no nervous agitation as to immediate results.

Sanitary care of bottles, nipples, and utensils

The greatest care should always be taken with the bottles, nipples, and utensils generally, which are used in preparing the food, and then the chances of trouble during hot weather will be lessened by half. If this is done the difficulties are being narrowed down to the combination that the child needs, and intelligent regard to the indications of trouble will help in the choice.

What sour vomiting may indicate

If the baby vomits and the milk is curdled and sour, it probably means that the acid needs to be corrected, and an addition of lime-water is made to the food, or a teaspoon of it is given just before each feeding. Sour vomiting may also indicate too much fat.

What other symptoms may indicate

If he does not gain in weight, but seems well, the percentage of sugar and fat may need to be increased. If, on the other hand, with the lack of gain, the flesh seems soft and flabby, if he is fretful, and if the movements of the bowels show undigested curds of milk, the tissue-building properties are not being taken into the system properly, and the stomach is not able to manage its share of the digestion. This means that further dilution or a predigestion of the milk may be necessary, though the latter should not be long-continued, since if the organs of digestion are not given enough to do they do not develop properly.

The distinction between vomiting and regurgitation should be remembered. When the stomach is

Distinction between vomiting and regurgitation

filled too full, it literally runs over, which is quite a different matter from the throwing out of food that has been acted upon by the digestive fluids. Milk which is regurgitated is unchanged in odor and appearance, and is thrown up very shortly after a feeding.

Temperature of the baby's food

The temperature of the food makes a difference in the ease of digestion. It should be about body heat, between 98° and 99° F., and should be brought to

Stomach of Infant Five Days Old (Natural Size)

that point by putting the bottle into hot water. It is easily tested by allowing the milk to trickle over the hand.

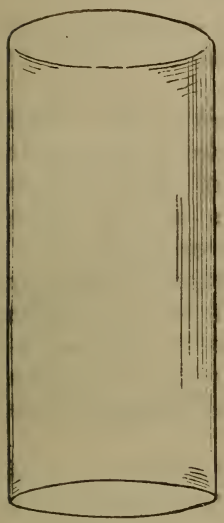
Never put the nipple of the baby's bottle in your mouth

The nipple should never be put into the mouth of the mother or nurse. It is, in the first place, taking an unfair advantage of the helpless baby to subject him to treatment that a grown-up person would resent; and there is besides the more serious ill—the danger of communicating the germs of disease. A baby is very susceptible, and a mild disorder in the adult may be reproduced as an acute condition in the child. The gums and teeth are rarely in a state of absolute cleanliness,

and it is impossible not to transfer micro-organisms if the nipple is not thoroughly washed.

It is rather important that the size of a baby's stomach should be taken into consideration when the amount of the feeding is being decided upon. At birth the capacity is from five-sixths to one ounce; at the end of the first month it has increased to two and a half ounces; twenty weeks finds it holding three ounces and six-tenths, and at the end of the year it holds eight ounces.

Sizes of the baby's stomach



Glass Cylinder Showing the Capacity of the Stomach

These dimensions should be kept in mind in feeding a bottle baby, for the tendency is always toward over-feeding. It requires about an hour to digest the milk, so the two-hour interval gives the stomach sufficient time for digestion and for rest between feedings. The subject of feeding in disease will be taken up in a later chapter.

Tendency to over-feeding

A baby will generally lose in weight for the first five days or a week after birth. Then he should average a gain of a quarter of a pound a week, for five or six months. The more a child weighs at first, the more he loses as a rule, a seven-pound baby often holding his own when one of ten pounds will drop to seven.

What the baby's gain in weight should be

Steady decrease in weight after the first week means a lack in nourishment. For this reason the advice of some authorities, that the amount of a baby's feedings should be what he can and will take, may be accepted with limitations. If he is overfed, the surplus will flow back—regurgitate, to be sure; but first it will

What decrease in weight means

distend the stomach and cause uncomfortable feelings, which will be strenuously resented. This is not desirable, and it seems better to plan a

SCHEDULE FOR FEEDING

A definite schedule allows us to approximate the amounts given as the changes are made from week to week.

Schedule for the first week

In general, then, for the first week, a baby should be fed every two hours, an ounce—two tablespoons at a feeding. There should be ten of these feedings given during the twenty-four hours, and the whole amount taken in that time should be ten ounces.

Between the first and sixth week

Between the first and sixth weeks the intervals may be lengthened to two and one-half hours, and the amount is then gradually increased to two ounces. This brings up the total to from twelve to sixteen ounces, and there need be only nine feedings in the twenty-four hours.

From six weeks to ten months

From six weeks to ten months the baby will need nourishment every three hours, but the amounts of the feedings increase, and the number decreases, till from four ounces we have come to eight, and we are giving only five instead of seven in the twenty-four hours. This means that the night is entirely unbroken, from six to six, or whatever hour may be chosen for the morning meal. To sum up, then, we may represent it all by the following schedule:

Age	Intervals	No. in 24 hours	Amount at each feed	Amount in 24 hours
1 week	2 hours	10	1 ounce	10 ounces
1 to 6 weeks	2½ "	9 to 8	1½ to 2 ounces	12 to 16 "
6 to 12 "	3 "	7 to 6	3 to 4 "	21 to 24 "
5 months	3 "	6	5 "	30 "
6 "	3 "	6	6 "	36 "
10 "	3 "	5	8 "	40 "

It must be understood that this is not absolute. Some authorities advocate giving the baby two ounces for his first feeding, and some vary the total amounts or the intervals in such a way that the results are slightly different, but this is reliable for a guide, and that is all one needs. Observation will teach one what the deficiencies are.

Variations to this guide

Proper treatment of a child requires above all cool judgment, rational thought, and the intention of fair play. Emergencies that arise are often alarming only because they are not met with the good sense of a steady brain, and if the reason that is required in all other problems of life were used with regard to the puzzles in feeding, in hygiene, and in physical and moral training which come up during the life of a child, we should have men and women in the coming generations who would be more evenly developed physically and nervously and who would have a saner outlook upon life in general.

Proper treatment of a child requires rational thought and justice

MEASURES FOR THE HOUSEHOLD

1 teaspoon	about a dram
1 tablespoon	about half an ounce
1 wineglass	about two ounces
1 teacup	about four ounces
1 coffee-cup or 1 drinking glass	about eight ounces

II

DIETARIES

Digestion—Needs of the Child—Diet Lists from Eleven Months to Three Years and a Half—Sweets for Children—Family Breakfast—Family Dinner—Supper—The Child at Table

DIGESTION

THE digestive apparatus consists of a long tube of varying shape and size, which passes through the body, the entrance being the mouth and the exit the rectum. There is no direct communication between this tube and the rest of the body, though there are intimate relations through the blood-stream which gathers its nourishment from the food after it has been chemically treated in this natural laboratory.

The alimentary canal

In the feeding of both children and adults, better results can be attained if there is a little recognition of the processes that are going on in the digestive tract.

The digestion of foods means the reducing of them by the action of the digestive fluids into such a condition that the nutrient substances they contain may be taken up by the blood-stream, and thus distributed to the various tissues of the body.

What digestion of food means

Digestion begins in the mouth, and is assisted by a chemical substance contained in the saliva, and by the mechanical act of grinding by the teeth and turning over and over by the tongue and cheeks. In this way the food is reduced to a pulp and thoroughly exposed to the action of this digestive fluid. The chemical action of the saliva is upon the starches, which that fluid converts into sugar and puts into soluble form.

Digestion begins in the mouth

Such substances as bread, cereals, and potatoes then need to be thoroughly masticated in order that their digestion may be begun.

What part of our food the gastric juice acts upon

In the stomach, which is the next portion of the tube, the gullet being simply the passage into it, the starches undergo no change, but it is such foods as milk, lean meat, and white of egg which are treated by the gastric fluid.

What work the intestinal digestion accomplishes

The fats and the starches which have escaped the action of the saliva, together with whatever the stomach has not acted upon, are thoroughly digested in the intestines, where also most of the absorption takes place. The residue—the waste matter which is of no service to the system—passes along and is thrown out in the daily evacuation from the bowels.

NEEDS OF THE CHILD

As long as the digestion of a little child is normal it is unwise to give it any amount of starches to dispose of. They will pass on to the intestines entirely unchanged, and it is better to put more of the work upon the stomach.

Do not give a child solid food until it has teeth to masticate its food

Milk contains all the constituents needed by the tissues, and does not require any digestion in the mouth. When this is understood it is readily seen how absolutely unwise it is to give a child solid food until he has a sufficient number of teeth to masticate properly.

Bread and potato can be made soft enough for a baby to swallow long before he has teeth, but to give them before he can chew means that they hardly come into contact with the saliva at all. There may be some action, because the chemical which saliva contains is very powerful, but Nature's provisions are generally to be trusted, and when the

system needs the varied dietary, the teeth, the mechanical aids to digestion, will be ready.

When illness brings change of diet

In illness it sometimes becomes necessary for the stomach to be temporarily relieved of its work, and then we are glad to know what to eliminate from the diet in order to throw the task of digestion upon the intestines alone.

As long as a child is nursing, up to the tenth month at least, there is no need of variation in diet, provided the health remains good. If he is a breast-fed baby he has already begun to have at least part of his feedings from outside sources, so that his food is not all of exactly the same quality.

Proper and improper food for the baby after he is ten months old

After the tenth month he can be given broths or beef-juice occasionally, and by the time he is a year old he can have quite a few changes from the regular milk diet. Between the eleventh and twelfth months he should be weaned from the bottle by being given it only for the first and last meals. He should on no account be nursed from the breast after he is a year old. The mother's milk is no longer suitable food, and will not supply him with the constituents needed by the blood for the building up of the tissues. The bones should be growing firmer, so that the weight of the body can be borne, and the necessary material for this work can be better supplied by other foods. The quality of the blood also becomes impoverished if the mother's milk is the only food. There may be exceptional cases where the milk remains rich and abundant enough, but as a rule the mother's system is depleted by the long strain, and the milk is poorer in quantity and quality.

Changes in a child's diet should be made very slowly, and he should be watched carefully after each change, to see if it agrees with him. One addi-

tion only should be made at a time. If the mother has decided to introduce broth into his bill of fare, she should substitute a portion of that for one of the milk feedings and let that suffice for the first day, unless the occasion is one of illness, when it is necessary to eliminate the milk.

Changes in the diet should be one at a time

She can then observe the effect of the change on the child, and regulate the next feedings accordingly. It must be remembered, too, in giving broths, that unless bread, rice, barley, or spaghetti is added to them, they are stimulants rather than foods. The fat is skimmed off and the tissue-building properties are in the meat which is rejected. As a stimulant broth has an important place in quickening the appetite and in aiding digestion.

The mother should watch effects

DIET LIST FROM ELEVEN MONTHS TO THREE YEARS AND A HALF

A diet list for children between the ages of one and three and a half years may be put in a condensed form as a suggestion to mothers who may have a little doubt as to the proper foods and their methods of preparation.

From Eleven to Twelve Months. Five Meals a Day

FIRST MEAL, 7 A. M.

Cream ..... one tablespoon
Milk ..... fifteen tablespoons
Milk sugar ..... one teaspoon
Salt ..... a pinch
Water (boiled) ..... four tablespoons

SECOND MEAL, 10.30 A. M.

A breakfast cup of warm milk.

THIRD MEAL, 2 P. M.

The yolk of an egg lightly boiled, with stale bread crumbs.

FOURTH MEAL, 6 P. M.

The same as second meal.

FIFTH MEAL, 10 P. M.

The same as first meal.

On alternate days

On alternate days the third meal may consist of from four to six ounces of mutton, chicken, or beef broth, containing a small quantity of stale bread crumbs. A small piece of unsweetened zwieback or dry toast may be used instead of the stale bread. Toward the end of the period indicated above the strained juice of an orange or a tablespoon of prune jelly may be given.

PRUNE JELLY

Soak the prunes overnight in cold water; the next morning add enough fresh cold water to cover the prunes; then stew slowly for an hour or two, until they are very soft, adding water from time to time to keep the prunes covered. When they are done rub them through a fine sieve, add a tablespoon of molasses to a pint of prune pulp, and stew again for about half an hour. If the child is troubled with constipation this jelly and the fruit-juice are valuable additions to the diet.

EGGS FOR THE CHILD

The eggs should either be boiled very lightly, or else so thoroughly cooked that both yolk and white will crumble when the shell is broken. If soft-boiled they should not be kept in more than three minutes if the water is continuously boiling, and about seven if they are cooked at the back of the stove in water

that has reached the boiling point just before the eggs were added. If the second method—that of thorough cooking—is used, they should be thoroughly cooked in water at the boiling point for an hour. Eggs cooked in this way are especially digestible, and will be found to be quite dry and mealy. The yolk of an egg is more easily digested than the white.

From Twelve to Eighteen Months. Five Meals a Day

FIRST MEAL, 7 A. M.

A slice of stale bread, broken and soaked in a breakfast cup of new milk. Or two tablespoons of well-cooked and strained porridge, oatmeal or cracked wheat, with two tablespoons of cream and a little salt, no sugar; a breakfast cup of new milk.

SECOND MEAL, 10 A. M.

A teacup of milk, with a soda biscuit, or a thin slice of lightly buttered bread.

THIRD MEAL, 2 P. M.

A teacup of beef, mutton, or chicken broth, with a slice of bread. One good tablespoon of rice and milk pudding.

FOURTH MEAL, 6 P. M.

The same as first meal.

FIFTH MEAL, 10 P. M.

A breakfast cup of milk, with or without the addition of a cereal.

To alternate with this:

FIRST MEAL, 7 A. M.

The yolk of an egg lightly boiled, with bread crumbs and salt. A teacup of milk.

SECOND MEAL, 10 A. M.

A teacup of milk with a soda cracker, or a thin slice of buttered bread.

THIRD MEAL, 2 P. M.

A mashed *baked* potato, moistened with four tablespoons of meat broth; two full tablespoons of junket with cream.

FOURTH MEAL, 6 P. M.

A breakfast cup of milk with a slice of dried toast or zwieback broken up and soaked in it.

FIFTH MEAL, 10 P. M.

A teacup of milk.

The fifth meal is often unnecessary, and the child should never be disturbed for it. Very often he will wake early, at five or six in the morning, and can then be given a cup of warm broth, instead of taking the 10 P. M. feeding.

OAT JELLY

Four ounces of coarse oatmeal are allowed to soak in a quart of cold water for twelve hours. The mixture is then boiled down so that it will make a pint, and is strained through a fine cloth while it is hot. When it cools a jelly is formed, which is to be kept on ice till needed. A little salt improves the jelly if it is to be eaten cold.

From Eighteen Months to Two Years and a Half. Four Meals a Day

FIRST MEAL, 7 A. M.

A breakfast cup of new milk; the yolk of a lightly boiled egg, with a little butter and salt; two thin slices of bread and butter.

SECOND MEAL, 11 A. M.

A teacup of milk and a soda biscuit.

THIRD MEAL, 2 P. M.

A breakfast cup of beef, mutton, or chicken broth; a thin slice of stale bread; a saucer of rice and milk pudding.

FOURTH MEAL, 6.30 P. M.

A breakfast cup of milk with bread and butter.

To alternate with this:

FIRST MEAL, 7 A. M.

Four tablespoons of well-cooked porridge, oatmeal or cracked wheat, with two tablespoons of cream and a little salt (no sugar); a teacup of milk.

SECOND MEAL, 11 A. M.

A teacup of milk and a soda cracker.

THIRD MEAL, 2 P. M.

One tablespoon of underdone mutton pounded to a paste; bread and butter or mashed potato moistened with good plain dish gravy; a saucer of junket.

FOURTH MEAL, 6.30 P. M.

A breakfast cup of milk; a slice of soft milk toast or a slice or two of bread and butter.

The receipt for junket has been given on page 214.

RICE PUDDING

The rice pudding is made as follows: Five cups of milk, two tablespoons of rice, half a teaspoon of salt, one-third of a cup of sugar. Wash the rice, mix the ingredients and pour into a buttered pudding dish. Bake from two to three hours in a very slow oven, stirring three times during the first hour of baking to prevent the rice from settling.

From Two Years and a Half to Three Years and a Half. Four Meals a Day

FIRST MEAL, 7.30 A. M.

One or two drinking glasses of milk; a saucer of thoroughly cooked porridge, wheatena, cream of wheat or oatmeal, and one or two slices of bread, one day old, with butter.

SECOND MEAL, IF HUNGRY, 11 A. M.

A glass of milk or a teacup of meat broth with a biscuit.

THIRD MEAL, 2 P. M.

A slice of rare roast beef or mutton, or a bit of roast chicken or turkey minced as fine as possible; a baked potato thoroughly mashed with a fork, and moistened with gravy; a slice or two of bread and butter; a saucer of junket or rice pudding.

FOURTH MEAL, 7 P. M.

A glass of milk; one or two slices of bread and butter or of well-moistened milk toast. The fourth meal may consist of porridge, bread and butter, and milk, if the child likes the cereal well enough to take it at two meals. If there is special need of laxatives a little baked apple or stewed prunes may be added to this meal.

SWEETS FOR CHILDREN

Keeping the child's tastes simple

During the first years of childhood, the diet should be very similar to the foods in the above lists. A child will become accustomed to simple food if he is always given it, and he will even accept as a matter of course a difference between his fare and that of his parents if that difference is constantly made, and he is never allowed to "taste" of dishes that appeal to him because

they are unusual. It is extremely unwise to give a young child cake or candy or any rich sweets. The system needs sugar, it is true, but it can be supplied quite easily in the regular diet.

Simple sweets do not necessarily have a bad effect on the digestion, but they create a perverted taste, and interfere with the healthy appetite for the food which is most healthful and nutritious. If a child does not know the taste of cake or candy, he will feel no deprivation, and when he is old enough to choose for himself, he will be far less likely to have an unnatural desire for them.

Sweets pervert the taste and create an unhealthy appetite

FAMILY BREAKFAST

It is very easy to make the breakfast of the family one which is equally suitable for the children. Fruit, either raw or stewed, a well-cooked cereal, toast, and, if desired, some other very light dish, eggs, or minced meat, or fish, make a meal that may be shared by all. The adults may add their coffee to this, but there is no excuse for giving it to children. Milk and water are the best drinks for children, and they will usually take them, unless their taste has been perverted. Cocoa can be occasionally given, when there is no hot dish included in the meal, or if the child can not drink milk.

Children sharing the family breakfast

Tea and coffee are distinctly bad for children, and yet there are mothers who give them to their babies, in the nursing bottle, for no reason but the effects, most deplorable, which the tender body clearly shows. The stimulant acts upon a child as it does on an adult, giving him a sense of satisfaction and of well-being that ought to be derived from the nourishment, and from physical vigor. After the child gets older, he craves the tea or coffee, and if he gets it, he demands far less in the way of solid food.

Never give tea and coffee to children

Evil effects of tea

A woman can feed her children on tea and bread when poverty is pinching, simply because the tea supplies artificially and temporarily what heartier diet would give permanently, and takes away the healthy appetite of the growing children. It lays no foundation for resistance in time of need, and debilitates the nervous system most surely, by depriving it of the nourishment it demands, and by exciting it continually with a stimulant that ought to be quite uncalled for. There is a brand of cocoa on the market which claims to have special nutritive value. It is called "Plasmon Cocoa," and contains besides the cocoa the nutrient constituents of milk, condensed and in the form of powder. "Phillips' Digestible Cocoa" is considered very light, and particularly suitable for children or invalids. Directions will be found on the boxes.

Cocoa as a drink

FAMILY DINNER

The midday meal should be the hearty one for children, so that if the family takes its dinner at night it is a better plan for supper to be served in the nursery at an earlier hour.

The dinner in which children may share

The dinner may begin with a clear soup. The meat or fish should be roasted or boiled, and cut into fine pieces. The potatoes are most digestible baked or mashed, and there need be only one other vegetable. Hominy, plain macaroni, spinach, peas, stewed celery, cauliflower, new string beans, and green corn, if it is grated from the ear, are vegetables that children can digest.

Fried food should be avoided, and no condiment but salt need be used. The dessert should be a light pudding, like rice, custards, tapioca, or gelatine.

The seasons should be considered in the choice of foods. Oatmeal, cornmeal, fats of any sort, food con-

training much butter in its preparation, or bacon, are heating and not suitable for warm weather. The wheat cereals, fruits, vegetables, fish and salads are less heating, and are more satisfactory for the hottest weather.

Consider the seasons in choosing food

SUPPER

The supper should be a very simple meal, such as has been described. Milk or cocoa may be given, and toast or bread with porridge, or some stewed fruit will furnish sufficient nourishment. If the breakfast is taken early, and the dinner late, especially if the child is very active, it may be wise to give a luncheon in the middle of the forenoon. This may consist of a glass of milk, and some sort of biscuit. Animal crackers are a delight to most children, and graham biscuit, or butter thins may be alternated.

A simple supper

THE CHILD AT TABLE

Children should always take at least two meals a day with their parents or an adult attendant, so that they may be taught to eat slowly and masticate thoroughly. A child can learn to handle his knife, fork, and spoon properly if a little trouble is taken with him. It is a mistake to give a child a spoon for all his food, for it accustoms him to it, and he is awkward when he begins to use a fork. A child should be expected to take his food daintily, and will soon learn to keep his place at the table tidy if he is ordinarily developed in muscular control, and has not been allowed to feed himself before his hands have grown strong and steady enough.

Children should be taught to eat slowly and to masticate thoroughly

Muscular control and daintiness

In planning meals for the child or the adult, the appetite as a factor in digestion must be recognized and considered. If food is not pleasing, it will not be taken in the first place, and secondly, if it is taken with no

pleasure attendant, it is almost never as completely digested.

Appetite a guide before dietaries were so varied

Before dietaries had become so varied, the appetite was a reliable guide in the choice of food, and what man craved was what he needed. We realize that with the increase in kinds of foods, and in the manner of their preparation, that keenness of instinct is lost, but there must still be a sense of "relish" if we are to get the full amount of nourishment from our daily meals.

Aids to appetite

Variety, attractive preparation, and attractive serving are important aids, and though they are less essential with children having the normal appetites of abounding health, they will be found worthy of consideration.

Mental effect of an orderly meal

It is of educational value for children to sit down to a well-set, tidy, attractive table, and the orderly meals, at regular times, affect his habits of mind as well as his habits of digestion.

III

SCHOOL-CHILDREN — THEIR FOOD AND EXERCISE

Breakfasts — Luncheons — Physical Activities and Mental Development — Health and Education

THE diet list given on the foregoing pages is quite suitable for children of any age, and even the adult members of a family would find that with occasional modification its suggestions furnish food that is nourishing enough to satisfy the daily demands, and sufficient in variety to stimulate appetite, unless elaborately made dishes or rich and unusual foods have spoiled them for simple, wholesome fare.

BREAKFASTS

Breakfast is usually the meal that seems the most difficult with school-children. In the home where there are several children, and where the task of dressing them and getting them all off to school comes on the mother, nine o'clock seems rather early, and the breakfast is likely to be a very hurried meal. Either on account of the feeling of haste, or because the functions of the body are still dormant, the appetite is often capricious, and any nourishment is taken with difficulty.

The pull at the beginning of the day

If children are accustomed to the simple meal, so that it seems sufficient, the appetite will be much more likely to be tempted by it than by the array of hearty food that used to be considered an essential for the American breakfast. When there is no servant, the

Values of the simple breakfast

economical side of the question would recommend it, for the saving of labor is always worth consideration. The fruit, cooked or uncooked, needs no preparation in the morning; cereal, toast, and coffee take very little time, and the eggs for those who wish them can be boiled or dropped with very little hurry or work.

Breakfast should not be hastily taken

Breakfast should not be hastily eaten, because the abundance of starchy food needs thorough mastication. It is well to vary the cereal several times during the week, and to give, in general, wheat preparations rather than oats. All the varieties need longer cooking than is recommended in the ordinary directions. Consult the article on the cooking of cereals in the Every Day Cook Book. Hominy and cracked wheat must be put on the night before, for they are extremely indigestible unless very thoroughly cooked.

LUNCHEONS

Luncheon in schools

The luncheon problem is a serious one in many households, because of the burden of preparing something every day, and still more on account of the limited choice of suitable food. When the school hours are so arranged that a luncheon is a necessity, there ought to be some arrangement for serving the whole or a part in the school building. This is provided for in many schools, and would be in many more if the parents brought it to the notice of the boards and insisted upon its accomplishment.

Arranging for soup, milk, etc.

Hot soup, or hot or cold milk, adds to the nourishment and to the pleasure, and if the luncheon takes the place of the noonday meal, is quite a necessity. The simplest arrangement would be tanks of cocoa, or bouillon, and of hot milk and water.

Beef tea, made with tablets or capsules, and malted milk could then be prepared as they are desired, and

with sandwiches from home a child could make a comfortable, suitable meal. The fact of having a definite place where pupils can sit together and eat comfortably, the sociability, and lack of haste promote digestion.

Unless the entire luncheon is prepared at school, the home basket must be furnished daintily if its contents are to be appreciated. Children who have normally hearty appetites, and who are not sensitive to appearances, may think more of the quantity given than of the exquisiteness of its preparation. But, however that may be, it is better for the child, from the educational standpoint, to find his sandwiches cut thin and small, and carefully wrapped in parafine paper or in a napkin, with whatever may be added daintily packed in a suitable box, than to take an equally nourishing lunch carelessly put up in a brown paper parcel. This subject of luncheons for school-children is also treated in the Every Day Cook Book. Sandwiches always suggest themselves as the staple of any lunch of the picnic order, and their variety is legion. A simple cake, a piece of gingerbread, or some fancy biscuit, fruit or a little sweet chocolate, or bit of pure candy added as an occasional surprise, is quite adequate if supplemented at the school by milk or a hot soup, or if the luncheon does not take the place of the meal, but merely bridges a space between breakfast and a late dinner.

Putting up school luncheons

Sandwiches and their accompaniments

To these general suggestions are appended some directions for making the less common varieties of sandwiches, which may serve to change an otherwise monotonous fare, and will add the element of surprise, which is such a stimulus to appetite.

White, graham, or brown bread, or fresh small rolls may be used for sandwiches.

Bread in the making of the sandwich

Bread should be a day old and fine in grain, and the sandwiches cut to better advantage if the loaf is nearly square. If the crusts are to be trimmed off, it is better to cut them from the loaf. Then there is no waste of butter, and the crusts can be dried and used for crumbs. The first slice may be spread on the loaf, but the second must be cut first in order to make them fit. Generally, both slices must be buttered, but only one need be spread with the filling. They may be cut into squares or triangles, or with a biscuit or cake cutter into other shapes.

Butter for the sandwich

The butter should be slightly warmed, so that it can be evenly spread, and the bread will not be torn.

Preparing meats for the sandwich

Slices of meat, unless it is very tender, are awkward for sandwich filling. It should at least be cut in small pieces, and is better chopped finely, and mixed with a little stock, cream, or dressing to make it moist. Fish can be pounded to a paste, or potted meats can be used, though they are usually too highly seasoned to be advisable. A little seasoning, like salad dressing or lemon-juice, improves the insipid meats or fish.

EGG SANDWICHES

I. Cut hard-boiled eggs into slices; sprinkle with salt, and spread with butter, which has been mixed with finely chopped watercress.

II. Add to the above a layer of lettuce leaves and salad dressing, omitting the cress.

III. Chop the eggs fine or mash them with a fork, seasoning them and mixing them with salad dressing.

LETTUCE SANDWICHES

Crisp lettuce leaves may be sprinkled with salt, and laid between the buttered slices of bread, or the bread may be first spread with salad dressing.

CHICKEN SANDWICHES

Celery added to chicken and chopped very fine makes delicious sandwiches.

CHEESE SANDWICHES

Cottage or ordinary dairy cheese is spread on the well-buttered bread, a little salt is sprinkled over it, and with the dairy cheese a bit of French mustard is an addition.

NUT SANDWICHES

Spread thin slices of Boston brown bread with chopped nuts, adding a little salt.

SWEET SANDWICHES

Jam, jelly, marmalade, or any preserved fruit, makes sandwiches that are very popular with children.

PHYSICAL ACTIVITIES AND MENTAL DEVELOPMENT

During the first twenty-five years of a person's life the influences which enter it have a vital importance. Character is being made, habits are being formed, knowledge is being stored, which not only determines what the life of that person shall be, but which decides what sort of inheritance he shall pass on to the next generation. One can never be sure whether the child whose equipment in life one has undertaken will in turn take upon himself the like responsibility of bringing children into the world and fitting them for its duties, but he ought to be given, for his own sake, the chance for the fullest possible development, that he may get from life the deepest possibility for lasting joy.

The far-reaching effect of child training

Until the age of fifteen, there is usually little assumption of responsibility, and little consciousness of

The child's unconscious gaining

the purpose underlying school work. This is as it should be, and the child's training should follow along these lines, letting him gain knowledge without realizing that it is part of a scheme of education, and forming his powers so that he can see and will and choose to know when the time for decisions comes.

Our time is one of upheaval along educational lines. The old theories have been tried and found lacking. We get the record from the elementary school that children's growth is largely arrested during the school year, and that those who are not placed in school until after they are seven or eight years old are stronger than school-children of the same age. School, which ought to be reckoned among the pleasures of childhood, so often stands in their estimation as one of its tragedies.

Setting aside the old theories

One great truth has been conceded: that children need more appeals to their sense-perceptions and fewer demands for abstract thought. The general result of this concession in some of the public schools has been that a mass of extra work has been thrown upon the teachers, and that the children have been confronted with a bewildering assortment of accessories in the way of colored objects, pictures, and so forth, without being relieved of the strain of the former work.

Fewer demands for abstract thought

The results have been hardly more satisfactory, for very obvious reasons. The child loves to learn. From the moment that the baby's fingers begin investigations with his own toes, he is eager, demanding, insistent for knowledge. What does the child need most in these years that are given to us to mold? How does he gain his knowledge of the things that are vital to him? He needs to be given the chance for the normal bodily development, and for the most untrammeled activity,

Child's development should be along bodily activity

because not only the physical but also the mental poise depends upon it.

A child's method of mastering a new and difficult problem is never to sit down and approach it with abstract theories. His is the plan of the true scientist. He conducts personal investigations, he makes unceasing inquiry, and he lives the thing he wishes to know till it is a part of him. This is the key of the situation. The mental processes of the child express themselves in action, and since the mental and physical activities are naturally associated how can the dissociation of them in school work good results?

The child's method of mastery

"Physical culture"—that is, the set drills and calisthenic exercises, which are a part of the day's routine in many classrooms, have their place. They relieve the tense muscles, and if well directed are of value in correcting defects in position, in carriage or in the development of muscles, which might seriously affect the health. Regarded from the standpoint of education, they have no special meaning. They are given of necessity under the exact direction of the instructor, whose ideas they express. The effort at concentration, and the necessity of prompt, unreasoning obedience to commands, are conditions which are created by the plan of the exercises, by the limitations of space, and the numbers working at one time.

In what physical culture is defective

No individuality is expressed

Work in a gymnasium, where the element of sport comes in, and the exercises, increasing in difficulty, incite the child to individual effort and interest, has both the educational and the hygienic side, and is an essential factor in development.

Physical education should not be limited to an hour or two twice a week. Since it is through physical activities that all other development is gained, the aim

should be to associate all the work of the early school years with such physical activity.

All the work of early school years should be associated with physical activities

If one estimates the value of the first years of school life by the amount of abstract facts stored up, or by the quantity of symbols mechanically learned, it may be that the conventional methods of teaching would seem to achieve most. If, on the other hand, one balances the results with the mental and physical control, with the ability to use the mind and to coordinate the muscles, and with the increased bodily vigor, which are accomplished facts when the modern educator is allowed to carry out his ideals, we must admit that childhood is a more joyous time, that youth will be one of stronger, more purposeful endeavor, and that adult life will stand for larger achievement.

The natural interest and pertinacity of the child in acquiring knowledge

A person's interest is really the secret of his acquirements. The interests of the child are manifold if the mind is allowed to unfold naturally and is led, not forced, into the new channels. At eight, he will teach himself to read with tireless industry, because of the world of wonders which the magic symbols unlock to him, while at five he toils along the dead level road of commonplace to glean such valuable truths as "The cat has a rat," or "I see the cat," and literature has no attraction for him.

Introducing knowledge by handwork

The introduction of handwork, if it is given its proper place in the day's work, offers a solution which has proved its value by thorough experimentation. The weaving and sewing do not become isolated subjects, but associate themselves naturally with history and geography; the abstractions of number and form become vividly concrete when applied to carpentry, and the cooking processes lead to simple chemistry, by the direct path of cause and effect.

In this way the conventional subjects are not thrown aside. They are woven into the general scheme so that dry facts do not confront the child, but interest colors them and makes them living.

Industrial education is not to teach trades.

The object of the industrial education is not to teach trades. We are not making artisans, but men and women, and as we lay the foundations of education we ask from the child physical expression, because that is his absorbing interest, and through it his mental interest is awakened.

HEALTH AND EDUCATION

Normal growth means healthy life

The health of the children is the note we are sounding, and normal life and growth generally mean healthy life. Most of our schools work along lines distinctly opposed to this. They place the child under abnormal conditions, in confining him in the classroom, out of the air and sunshine which are his by right, by seating him at a desk which often cramps or strains his muscles, and by restricting his motions to set exercises allowed only at stated intervals, with no regard to his inclination, and suggested by a mechanical power quite outside his consciousness. With this utter lack of spontaneity they demand irrational results, and in their disregard of hygienic principles they defeat their own ends, for the most rapid mental progress is made when bodily health is assured.

Irrational demands

The health of the child ought to be benefited in consequence of his attendance at school. If we find that this is not true, our criticism of school methods is justifiable.

Diseases caused by bad conditions at school

Some of the diseases which school-children are found suffering from are affections of the eyes, spinal curvature, nervousness, rickets, chorea, catarrh,

headache, tuberculosis, indigestion, and constipation. All of these are aggravated at least by unhygienic conditions which are existent in the common schools. Nearsightedness and other such abnormalities are very prevalent among school-children, and statistics show that nearsightedness progresses with the grades till in the highest classes more than one-half the pupils have defective vision.

What statistics show

The city schools show a higher percentage than those in the small towns, and among the pupils in buildings of recent model construction in regard to lighting the proportion is smaller. This is the most eloquent argument against the crowded, ill-lighted schoolroom, and yet in the face of such proved facts we find classrooms in large cities which have to depend largely upon artificial light.

School furniture responsible for spinal curvature

Unhygienic school furniture is chiefly responsible for spinal curvature, which is appallingly common among school-children. Sometimes it is not noticeable, but often it increases till it is a very apparent deformity. Between seven and fourteen the largest percentage of this disease is found, probably because before that a child is not confined so closely at school.

It is entirely unnatural for children to remain for any length of time in the sitting position. The bones are not yet firm, and the muscles are weak. School hours are unfortunately long, and the bones of the spinal column yield in time to the force of gravity, even if a strained position at the desk has not played its part in causing a curvature.

Bones of school-children not thoroughly ossified

The ossification of the bones is not complete until the age of twenty-five, and until thirteen or fourteen it is possible to make definite changes in their position by judicious or injudicious treatment.

Nervousness is marked in school-children, and manifests itself in various forms, but is increased by the pressure which is applied in school work, by the worry over examinations, and often by the nervous tension of the instructors, who must feel the stress in their turn. Rickets, tuberculosis, catarrh, and headache may not necessarily be brought about by impure air, but it certainly tends to increase any of those troubles, and the sitting posture, particularly if the back is not held erect, has its effect if there is any predisposition to rickets or tuberculosis.

Results of worry and impure air

Two essentials in any lung trouble are that the lungs should have air rich in oxygen and that they should expand fully. When the shoulders droop or the body is held in a cramped position at an ill-made desk, the lungs are compressed and the air cells can not do their work.

Essentials in lung troubles

The special causes of chorea have been discussed. The fatigue of muscles forced to the strained effort of maintaining one position, or of concentrated attention to circumscribed movements, as in writing, probably has much to do with increasing the severity of the attack, especially as the nature of the trouble is often not recognized and more pressure rather than less is applied.

Fatigue in chorea

The time for meals is shortened, eating is too often a hurried, perfunctory task, and indigestion results. The sedentary life increases the difficulty, and adds the grave one of constipation. The rush of getting off to school in the morning, the restraint during working hours, also have their effect, for habits of regularity are difficult to form under these conditions, and if the bowels are neglected results are disastrous. The old English philosopher, John

Evil results of a hurried school life

Locke, in touching this point in his famous work on education, advises a regular hour at which a child should invariably "solicit nature"—this hour being kept to with inflexible regularity.

Locke's famous remedy for costiveness

"There is reason to suspect," says Locke, "that children being usually intent on their play and very heedless of anything else, often let pass those motions of Nature when she calls them but gently; and so they, neglecting the seasonable offers, do by degrees bring themselves into an habitual costiveness." The remedy suggested is the holding the child daily to an hour for action, and thus establishing the regularity in which Nature rejoices in all her works.

Schools afford few signs of physical advance

We do not mean that these evils are inevitable in the school life of a child, but it is true that a general survey and examination of the health of pupils shows that a surprising proportion has chronic disease of more or less serious nature, that headaches are universal, that, in short, Civilization has no advance to show as regards the physical condition of her children. The Spartans gave their youth first and foremost the gift of vigorous bodies, trained by endurance to perfect control, to a thorough enjoyment of life through spontaneous self-activities and expression. When our system of education accomplishes that for the physical, it will be time to point with pride to the gain in mental development of the children under its guardianship.

The nervous breakdown in college dates back to pressure in the elementary school, systematic pressure, persistently applied. If all schools were like the worst, the evils would be such crying ones that parents would demand a change, and it would come.

The number of schools of the better sort is increasing, and as the experimentation succeeds the popular prejudice against learning made joyous will disappear, and the normal training of children will not be limited to the few, but will be the natural heritage of all.

The better sort of school increasing

IV

POINTS ON HYGIENE

"Toughening"—Baths—The Teeth—Footwear—Dress

"TOUGHENING"

THE process of "toughening children" is a very mistaken one, failing utterly of its purpose in nearly all cases. Generalization in the treatment of children is not rational, and cold baths and exposure to all kinds of weather indoors and out are not universally helpful.

Cold baths and cold rooms may tend to make children less resistant to disease

The cold bathing, unless a child has vigorous, abounding health and a nervous system that enjoys the shock, tends to debilitate rather than to stimulate, and with increased nervousness come loss of appetite and sleeplessness.

Exposure in cold sleeping-rooms, instead of making a very little baby less liable to throat and chest affections, often leaves him more susceptible to colds, catarrh, and sore throat, and this susceptibility increases the severity of many of the infectious diseases of childhood.

In exceedingly inclement weather very little children should not be taken out. The air in their sleeping-rooms must be fresh, and they must be so ventilated that it is changing constantly, but widely opened windows and atmosphere perceptibly chilled are conditions which are likely to make children less resistant rather than more so.

The extreme is quite as much to be condemned.

To keep a human being protected like a hothouse flower indoors, to wrap the throat and indeed the whole body in fur, and to make impossible free exercise out in the air is to make sure a weakening of vitality which leads to practically the same results, along perhaps more direct paths. The individual must be considered, and the process of hardening must be gradually established, with little attempt at radicalism till after the child is capable of independent motion.

Weakening by too much protection

BATHS

Bathing in disease, and its relation to the functions of the skin, have been described. Its importance in health is no less to be considered. The daily bath ought to be as much a part of the day's routine as the care of the hair, and children will so regard it if it is given them as regularly after they are grown as when they are babies.

The daily bath

In summer a child who has been vigorously playing all day needs a warm cleansing bath at night, because the perspiration has been secreted so plentifully and the oil-glands have also poured out their fluid in abundance. This has been mixed with the dust, which collects upon the surface of the body, sometimes in a perceptible amount, but always enough to need removal with warm water and soap.

The bath before sleep

A bath should not be given immediately after a meal, but if children have their suppers at five or half-past, there is time for the little frolic which always seems to have its place before bedtime, and the bath will quiet the nerves and relax the muscles for restful sleep.

In the winter the bath is useful to stimulate the circulation, to increase the heat of the body, and to render the child, if possible, less susceptible to cold.

The bath in winter

For this reason the cool or tepid plunge in the morning is of especial value. If he is of normal health, and is gradually accustomed to the cool water, he will learn to like the shock and will especially enjoy the glow and tingling warmth of the reaction. A cold bath must be given with care, for unless a child is very vigorous the shock will be too great, and no good will result.

The air bath

Children enjoy the feeling of the air on their bodies, and if the household is one which will admit of it, they should be given the chance each day for a brisk run about through the rooms of comparatively even temperature, without the restraint of clothes. As long as children are unconscious of their bodies there is no reason why they should not have that freedom, and it is made impossible by remarks which they feel though they do not understand.

Frequent and thorough shampooing

Children's scalps collect dust and their hair requires shampooing much more often than that of adults. If the hair is short it is very easily kept clean, but it must not be neglected, because an accumulation of dirt may lead to disease, and if a little borax or alcohol is added to the last rinsing water the hair dries quickly and there will be no danger of catching cold.

THE TEETH

If teething is delayed consider the child's food and digestion

Teething usually begins at six months. It may be delayed until the second year, with no other sign of arrested development, and the order in which the teeth come may vary in every way without any indication of illness, and with no bad effects upon the system.

Parents, however, should be sure that the food contains the proper elements for the nourishment of the child, and that it is being properly digested. The food is often responsible for disorders that are at-

tributed to teething. If the teeth are delayed in their appearance, or if the gum is unusually hard and fibrous, so that they have unusual difficulty in piercing it, there will be nervous irritation and there may be functional disorders, but if the food is suitable the symptoms are not the same as those produced by intestinal trouble.

Symptoms in difficult dentition

The diarrhœa that is sometimes caused by difficult dentition can be distinguished from that brought about by intestinal irritation. In difficult dentition there will be great fretfulness and acute pain, with spasmodic movements of the muscles of the face, the gums will be swollen and red, and the appetite will be variable. The child troubled with indigestion wishes to bite and chew anything put into the mouth. One suffering with pain from swollen gums will not bring them together upon anything. If the teeth are responsible for the condition, lancing the gums will give immediate relief.

The groups of teeth

The teeth appear in groups, making a division in time which allows a rest between their appearances. Changes in food, weaning, or any such break in regularity may best be arranged for one of these periods of rest.

A table which may be accepted as representing the usual order is as follows:

I.	6— 8 months	2 middle lower incisors
II.	8—10 months	4 upper incisors
III.	12—14 months	4 lateral lower incisors 4 first molars
IV.	18—20 months	4 canines
V.	28—32 months	4 second molars

Number of the first set

The first set of teeth numbers twenty. The four middle teeth in both jaws are called incisors, the next four on either side the incisors, both upper and lower, are canines. The remaining eight are molars.

The importance of care of the temporary teeth is not appreciated, and they are too often allowed to become decayed, and thus of no use to the child. The evils of this are twofold. The presence of a decayed tooth in the mouth means that the micro-organisms which cause the decay are spreading their poison to other teeth, through the roots to the permanent tooth which is to take its place, and leaving an effect upon the general digestive tract. In the second place a tooth which contains a cavity is incapacitated from its share in mastication.

What evil a decayed tooth may do

A child will adjust himself to conditions if a remedy for them is not forthcoming, so that often he will cease complaints of an aching tooth because he has adopted the plan of giving it no work to do. If there are decayed teeth on both sides of the mouth this frequently means that food is swallowed practically without mastication. Habit is strong in all the acts of our daily life, and such a one established would inevitably lead to imperfect digestion.

How bad teeth affect a child's mastication

The teeth are intended for use, and the mastication of solid food keeps them in a healthy condition, and is one of the best helps toward cleaning them.

The pain of decayed teeth also affects the nerves in a way that is exceedingly bad for a child's development.

If the temporary teeth are decayed and neglected the permanent ones which follow are almost sure to be imperfect. When a tooth is lost the gum shrinks and the space that the second tooth is to occupy changes in shape. It is then very likely to be out of place, and will very probably crowd the other teeth. The greater probability is that the decay of the first tooth is communicated to the second, and to its neighbors as well.

Care of the first set

Children should have early instruction in the care of the teeth. While they are very young they can be taught to rinse the mouth thoroughly, and the use of the toothbrush will interest them, in the beginning at least, because of its novelty and as being a sign manual of increasing ability. Such a brush as that called the prophylactic is the most sanitary and effective. Its bristles are of unequal lengths, and a tuft of longer ones at one end penetrates well behind and between the teeth. The curved shape of the handle makes it fit the jaw better than the straight brush.

The sort of a brush to use and how to use it

The toothbrush should be used over the surface of the teeth with a downward motion on the upper teeth and an upward motion on the lower teeth, which causes the bristles to pass between them. The food and the motion of the lips, tongue, and cheeks over the surface of the teeth prevents the accumulation of organic substances and the development of micro-organisms, and it is between the teeth that decay begins. Dental floss may be used additionally to make sure that no food has lodged there, and is much better than wooden toothpicks, which are very liable to splinter and leave behind more harm than they remove.

The tooth-brush

Dental floss *versus* wooden toothpicks

A tooth-powder is useful, though not absolutely essential, if the cleansing process is regularly and carefully carried on. A very good formula for powder to be made in the household is as follows: One part white castile soap, two parts precipitated chalk, with powdered orrisroot to flavor it. Shave the soap in thin flakes, and dry it for a day or two before using. Proportions and flavoring can be varied.

A tooth powder

Children can be accustomed to visits to the

The teeth should be regularly examined by a good dentist

dentist's so that there need not be that frantic terror at the thought that often keeps a parent from giving them the proper care in that regard. Too often stories of agonies suffered are retailed to their ears. This should never be allowed, and the regular visits for examination will remove many of the alarms.

The permanent teeth

The permanent teeth number thirty-two. At about six years of age four of these teeth, the molars, appear just behind the temporary molars. Four more come about six years later, still further back on the jaw, and the eight bicuspids take the place of the eight temporary molars. This early appearance of the first permanent teeth should be understood, for often it is considered that they are first teeth, and they are allowed to decay.

When a tooth aches

When the pain in a tooth is caused by the presence of a foreign body on a live pulp, removal of the cause relieves the pain, but when there seems to be no especial reason for it the treatment is different. The cavity should be carefully washed out with tepid water or with water and peroxide of hydrogen in equal parts, dried with absorbent cotton, and a tiny bit of the cotton, soaked in equal parts of carbolic acid and oil of cloves, placed in the cavity. A five per cent solution of carbolic should be used, and care must be taken not to get it on the surrounding gum, since it will be liable to burn any tissue it touches. Compound tincture of benzoin applied in the same way may also relieve.

Care of the teeth

The necessity of immediate care of diseased teeth can not be too strongly emphasized. If the teeth are properly brushed as they are coming in, the loss of teeth in adult life is very unusual. "Gum-boils," abscesses, and decay of teeth, aside from the pain, which must be nervously debilitating, are constantly

introducing poisons into the system, which negative any measures taken toward hygiene of the digestive organs, and imperfect digestion is incompatible with normal development.

FOOTWEAR

Careful attention to the tender feet of children

Troubles with the feet, either from corns, from tenderness in the soles, or from difficulty in getting comfortably fitting shoes, are common enough among adults, so that the need of careful attention to the feet in childhood must be recognized. We have spoken of the cartilaginous state of the bones in infancy. That condition and the fact that the foot and ankle are composed of a number of very small bones make it possible to compress the feet in childhood and cause them to grow misshapen or even deformed, without severe pain.

The fad of bare feet and legs had for its inspiration the reasonable revolt from the unhygienic treatment that childhood had received in this regard, but it was extreme, and may be modified on more rational lines. The freedom is admirable, but the exposure is not always wise. Warmth of the extremities is what we emphasize as necessary to protect a baby from colds, and the intestinal disorders which so often follow.

The first shoes

The first shoes should be soft kid moccasins, made of ooze or undressed kid, with no stiffness in the sole, and fastened with a soft lacing up the front. These are sold by any firm dealing in children's furnishings, but are much more cheaply made at home. To make them is very pretty work, and the pattern can be enlarged as the foot grows, so that there need be no danger of pinching the feet.

A child can often wear these from the time he

begins to walk until he is three years old, a stouter kid being chosen as he becomes more vigorous. They ensure an absolutely natural position of the foot, quite as truly as no shoe at all, and they offer ample protection from cold and dampness on the one hand, and from the dirt and sharp objects that experience has proved are a source of danger to children allowed to go with legs and feet uncovered. The baby who is only creeping, or whose walks are confined to his nursery, does not run the second risk, but older children do, and cuts from sharp stones or pieces of glass, or the more dangerous wounds from rusty nails have been sources of such serious illness that the protection of feet and legs ought to be appreciated.

Need of a moccasin protection to the feet

Almost every child when he begins to stand or walk will hold the feet either at a direct right angle, from a line drawn down the front of the leg, or slightly turned in. The prints of his feet show a series of almost parallel lines. It is only when he has grown considerably older that he adopts the "toeing-out" position, which he acquires either from imitation or by definite instruction. The natural position should not be interfered with. He may acquire habits, like standing with the weight resting on one leg only, or with one foot turned over, which certainly requires correction, but the straight position of the foot is now believed to give better balance to the body, a firmer contact with the ground, and less strain on the muscles and bones composing foot and ankle.

The natural position of the feet

Values of the position

The small bones are put together in such a way that they form the arch which gives the foot its grace. An habitually false position continually kept up weakens the muscles and ligaments which hold the bones in place, and the arch breaks down, causing

The breaking of the arch of the foot

the foot to rest evenly on the ground, depriving the carriage of its elasticity and occasioning intense pain during the gradual sinking of the arch, and afterward when the weight of the body is borne for any length of time.

This is a condition known as flatfoot, and must be corrected by metal plates worn in the shoes, to support the broken arch in its original position. With children the condition is very unusual, and if they were encouraged to maintain the normal position of the feet rather than being instructed and sometimes forced to walk in the more conventional way, there would be fewer adults with weakness of this kind.

When the time comes for the child to put on stouter shoes, especial care should be taken to get those that follow as closely as possible the outlines of his foot. If he has enjoyed the freedom of moccasins for two or three years he will rebel at any approach at undue compression, and this early education, especially if his somewhat radical views on the subject of footwear are respected by the parents who provide and choose his clothing, will probably make him always regard comfort before fashion, and will save him from many of the adult infirmities.

Shoe should follow the outline of the foot

Stout soles, flexible leather, and spring heels are three other essentials, and when the heel is changed it should be by the addition of a very few lifts at a time, should never be high, and should be as a support at the extreme back of the sole, not sloping in toward the middle of the foot.

Essentials of a shoe

DRESS

We have emphasized the need of simplicity in the clothing of the baby, and of giving him entire freedom of movement so that he will not feel the restric-

Need of simplicity

tions of tight bands and heavy skirts. These needs increase rather than otherwise with the growing child.

There is a temptation to regard a child, particularly a girl, in the light of a doll, and to try the effect of frills and ribbons upon her, losing sight of the question of her right in the matter.

A child should be dressed with regard to his activities

Whatever the sex, the child should be dressed with regard to his activities, not to his capacity for decoration. When a baby begins to crawl about on the floor or in his "pen," he can be made more comfortable and his clothing will be protected if he is put into "creepers." These are very full, baggy trousers, gathered around the legs, and extending to the armpits.

"Creepers"

Pinafores may be made for the same purpose, with a draw-string in the hem at the bottom. These serve as a protection to the skirts, which are safely tucked up inside, but the question is whether the little dresses themselves might not be made of colored stuff after the trousers pattern, thus avoiding the extra bulk and clumsiness.

Proper dress allows the baby natural activities

During a baby's waking hours he is always happiest when he is carrying on investigations in the dirt or about the floor, which even in a model house can not be free from dust. If he is dressed properly he can be allowed much more freedom both summer and winter, and though he may not be such a source of gratification to the æsthetic sense, his sturdiness, healthy color, and growing strength will soon convince any one that the beauty of health is greater than the combination of dainty, spotless skirts and fluffy hats, with the delicacy of skin which is due to shelter from breezes and sunshine. When laundry is no consideration the colors of wash suits may, of

course, be lighter, and white may be worn and is rather more satisfactory than the delicate shades, which soil almost as quickly, and fade in washing.

Do not burden the child with clothes

We make the mistake often of burdening a child with too much clothing when the same amount of warmth could be gained with less weight and clumsiness.

A suitable dress

A perfectly comfortable and suitable set of garments for children to wear may consist of a combination suit, or shirt and drawers, of cotton jersey in summer and of woolen or part woolen in winter, a pair of full bloomers or knickerbockers coming just to the knee, and made on a cotton waist, and a Russian blouse of the same material as the knickerbockers. In winter the combination suit should be high in the neck, long sleeved, and should reach to the ankles. In spring one of medium weight is needed and if the summers are cool or if the child is delicate they may be suitable for the entire season. Otherwise a third set, light in weight, low-necked, short-sleeved, and knee length, will be necessary.

The knickerbockers and dress are made of cotton or linen in summer, and of wool in winter, and the long coat, made of warm stuff, and interlined for the coldest weather, supplies the needed protection.

The suit fitted for boys and girls

This dress, with modifications, is equally suitable for boys or girls. There are no extra garments, the task of dressing and undressing is made very simple, and no style of costume is more becoming to the grace of a childish figure than the long simple lines of the Russian blouse. It lends itself very effectively to artistic ornamentation, though frills, bows of ribbon, and lace are eliminated by its severity.

For a girl the skirt of the blouse reaches below

Variation for girls

the knickerbockers, concealing them entirely. A boy's is shorter, coming down about halfway between the knees and the waist.

Allowing the girl activity and health

The difference between their dress usually makes necessary a difference in pursuits, for which there is no indication so far as good sense and reason are concerned. A girl enjoys freedom of limb, activity of exercise, and life in the open as well as any other healthy little animal, and too often she is forced to follow her natural instincts only at the expense of her clothes, and a reputation for gentleness, which she may not in her heart desire, but which is held up before her as a model for her sex.

Do not emphasize sexual differences

The association of children should be natural and free, and sexual differences should be emphasized as little as possible, either by their dress or their manners. In this way unnatural precocity will be suppressed, and consciousness of sexual questions, and curiosity concerning them will be delayed till development makes explanation necessary.

V

DISORDERS OF CHILDREN

Symptoms of Illness—Colic—Jaundice—Inflammation of the Eyes—Thrush—Diarrhœa, Constipation, Convulsions—Teething—Milk Crust—Eruptive Disorders—Hives—Prickly Heat—Ringworm—Croup—Rickets—St. Vitus's Dance

SYMPTOMS OF ILLNESS

THE observation of symptoms in children's diseases requires much more skill than in the ailments of adults. Even when a child is old enough to make complaints, he often does not locate or describe pain at all accurately, and in infancy we must depend almost altogether on objective or involuntary signs of distress.

We have spoken of the character of the cry. When the pain is in the abdomen, the cry will be long and loud, and tears will be shed. The muscles of the abdomen will be relieved of strain by the position of the legs, which will be drawn up close to the body. As the pain subsides, the loud cry will change to deep sobbing.

Signs of distress in the abdomen

When the chest is involved, the cry is sharp and short, and the breathing will be rapid and labored.

In the chest, head, ear

If a child rolls his head from side to side, there is suspicion of brain trouble. The cry in this case may be a sharp scream, or a low moaning. If he has earache, he generally rubs the affected side with his hand, and sleeps with it turned down on the pillow.

Restlessness during sleep, the position he takes when at rest, the character of the stool, the breathing,

the temperature, and the pulse should be noted and reported.

The pulse

The pulse can be most accurately taken when the child is asleep. In health it should be between ninety and one hundred, but it varies so very easily, and is influenced by such trivial causes, that more dependence is put on the temperature as a guide in sickness.

Observing general symptoms

If a child shows any symptoms of illness we look at the tongue, we take the temperature, and ascertain the condition of the bowels. The tongue should be clear and moist, the temperature should be in the near neighborhood of 98.6° F., and the bowels should be moving easily once or twice a day—the movements should show no undigested food, should be pasty in appearance, and yellow or light brown in color. If we find these three points satisfactory, we may feel assured that the disturbance is not a serious one.

Examining the throat

If the child seems to be in pain, and has a rise of temperature, it is always wise to examine the throat. Many of the children's diseases begin with throat trouble, and little children rarely make any complaint that would lead one to suspect where the difficulty lies.

Value of the warm bath

When a child first shows any signs of illness it is always wise to put him in a warm bath. He should remain in it for about five minutes. That will tend to bring out the rash if it is one of the eruptive diseases, to reduce temperature, and to soothe the child so that he can sleep. The room should be warm and the bath should be given with as little disturbance as possible in the preparation.

An olive oil laxative

It is always safe to give some mild laxative, and olive oil is as simple a remedy as can be tried. The dose is from twenty drops to a teaspoon of it.

If there are other children in the family, it is safer

to keep the baby by himself until one is sure that the disease is not contagious.

If the baby is being fed on the bottle, the food may be diluted a little—one-half the strength if the stomach is disordered. If the temperature is high, he should be given plenty of pure boiled water to drink. Food and drink

No medication beyond the laxative should be given without the doctor's orders. Many of the various disorders that afflict babies can be treated without a doctor, but mothers must understand what symptoms are alarming, and which are typical of the more serious diseases.

COLIC

One of the earlier of baby ills is colic. If it is persistent, it can often be traced to the food or to a disordered condition in the mother, when the baby is nursing. Cold hands and feet are sometimes responsible for it, and heat, applied to the body outside, and by warm water, or a little peppermint internally is the best remedy. Colic is caused by an accumulation of gas in the intestines, so the logical course is to set it free, and to cause it to pass downward, and out if possible. Remedies for colic

Paregoric or soothing syrup of any kind is particularly harmful, since it simply dulls the consciousness of pain by the action of the opiate, which is contained in almost any such preparation. Do not use soothing syrups or paregoric

JAUNDICE

The jaundice of the new-born is rarely at all alarming. It occurs during the first and second weeks of infant life. The skin and the whites of the eyes look very yellow, and the urine is highly colored. It is sometimes caused or increased by a tight bandage, and after that is loosened, the symptoms may entirely dis-

Remedies for jaundice

appear. If it persists, especially if it seems to affect the general health, a physician will prescribe medicine to stimulate the secretion of bile and to clear out the intestines. The bowels should always be kept freely opened, and often the use of olive oil will be sufficient.

INFLAMMATION OF THE EYES

The routine care of the eyes has been described.

The discharge from the vagina of the mother at the time of birth may infect the baby's eyes, so that the inflammation appears shortly after birth. For this reason, the greatest care should be taken to bathe the eyes with boric solution before they are opened at all. They may be infected at a later time by carelessness in handling or by coming in contact with a towel or handkerchief that has been used by a person suffering from some disease. The treatment in any case is the same.

The treatment at birth of boric solution

In the beginning, a redness of the eyelid, with a slight swelling, is remarked. There is also a discharge which tends to prevent the eyes from opening. All these symptoms rapidly become worse, till the eye is completely closed, the lining becoming so swollen that it turns completely out over the lid, if the latter is drawn down.

Inflammatory condition of the baby's eyes and its danger

It is an extremely dangerous condition, if allowed to persist, for the discharge is very poisonous, and the cornea, or covering of the eyeball, may become ulcerated and destroyed, when, of course, the disease would penetrate to the inner chambers of the eye, and the sight would be destroyed.

A physician should be consulted, unless the redness yields at once to treatment. If the trouble appears in a new-born baby, the doctor should be at once advised of it.

Thorough irrigation of the eye is necessary. This should be done with a boric solution, and may have to be repeated every fifteen minutes. It must be done often enough to keep the eye entirely free from discharge. The lids are to be separated, and the solution, warmed to body heat, allowed to flow plentifully over the ball of the eye. Irrigating the eye

The same precautions which are to be given in the ordinary care of the eyes are to be observed here. The solution must flow toward the outer angle of the eye, so that there is no chance of carrying the infection from one eye to the other. Cloths or compresses must be burned. Precautions

Basins should be boiled or burned out with alcohol after use, and great care must be taken in washing the hands at once after giving the treatment. Disinfection

The baby should never occupy the same bed with other children, and he ought to be completely isolated. The doctor will probably order compresses wrung out of ice-water, and applied constantly over the eyes.

Danger lies in the neglect of such a condition as this. It is estimated that no less than one-fourth of the cases of blindness in adults is traceable to this disease. It is most common among persons who live in unsanitary surroundings and who are careless about cleanliness, and the commonest laws of hygiene. Danger lies in neglect and carelessness

THRUSH

Thrush or sprue is a disease of the digestive tract.

It is caused by improper food, or by neglect of the mouth, which should be washed frequently during the day. The particles of milk which remain in the mouth after feeding decompose and cause tiny ulcers to form. These spread into patches, and in severe cases extend all over the mouth, and even into the stomach. The How thrush is brought about

throat and mouth may become so tender that swallowing is almost impossible, or the irritation may cause a diarrhœa, which is very exhausting.

The remedy

A wash of borax, or one made of a teaspoon of baking soda in a cup of water, is usually the remedy given. The mouth should be washed out very gently, as there is danger of irritating the delicate lining membrane. It is perhaps better to apply the solution with a soft camel's-hair brush.

Prevention

Prevention is much simpler than cure, and the utmost care should be taken in the preparation of food, and in the care of utensils, in order to guard against such possibility of disease.

"Pearls"

There are normally in a baby's mouth tiny white spots, which are called "pearls." These do not indicate disease, and should not be rubbed with any force in cleaning the mouth. After a little observation, it will not be difficult to distinguish the difference.

Thrush is more likely to occur in a child whose resistance is weakened by some exhausting disease. There is no need of its appearance in a healthy child, if he receives proper care.

DIARRHŒA

Diarrhœa is caused by some irritating substance which is present in the intestines.

What diarrhœa indicates

With the bottle-fed baby, who is most subject to the trouble, it means too often neglect in the care of bottles or nipples, or carelessness in the choice of the milk. With older children it is generally due to the eating of unripe or decayed fruit, or to an excess of green or tainted vegetables.

The first treatment

Our first task is to get rid of the irritating poison, and there are certain things that the mother can do promptly before a physician comes. A teaspoon of

castor oil will purge the bowels, and the digestive apparatus may be relieved of some of its work by stopping all the milk for twenty-four hours at least.

Barley water, wheat gruel, or mutton broth and barley water, in equal parts, may be substituted. The frequent loose movements are taking a great deal of water from the system, so this should be supplied as far as possible, by giving as much water as he will drink. It should be boiled and cooled. Substitutes for milk

There is often vomiting with the diarrhœa, when it may be impossible for the stomach to dispose of any food at all. In that case, egg or albumen water, as it is called, will furnish a little nourishment, and can generally be retained. This can not be relied upon for any length of time, but is better than an absolute fast, till the trouble is under control. The egg-water is given in small amounts, sometimes a teaspoon at a time, and at intervals of half an hour, or from two to three ounces every two hours. Egg-water

If the trouble seems to be chiefly in the stomach, it may not be necessary to eliminate the milk entirely from the diet. It may instead be predigested by peptonizing. As has been stated in a previous chapter, the peptonizing must not be continued, as it leaves too little work for the stomach to do. Cereo is a preparation which predigests starchy foods, as the peptonizing powder does milk, and this can be added to gruel, leaving out the sugar in this case, and making it double the strength. Cereo comes in bottles, with directions for its use, and can be obtained in any drug-store. Peptonizing and predigesting foods

The movements of the bowels are not only watery and frequent, but they are generally of a bright green color, and contain small curds, showing that the milk is not being taken into the system, but is passing through the canal undigested, and is acting only as an Symptoms which require stopping all the milk

irritant. This condition is an indication for stopping all the milk for twenty-four hours at least, to relieve the digestive apparatus of some of its work.

Summer complaint and dysentery

The diarrhœa may indicate a simple temporary derangement of the bowels, or it may accompany the dreaded summer complaint, when the stomach as well is involved, or it may take the form of dysentery, when blood and mucus appear in the stool. The two latter diseases are very dangerous, because if long continued the system becomes so weakened that the strength is spent and the child does not rally, even if the first cause can be removed. If the cathartic does not accomplish the desired result, the doctor will probably order rectal irrigation with a salt solution. He will give the mother directions and assistance for the first time at least, and usually it should not be done without his orders.

Using the syringe

There are times, however, when a woman must act upon her own responsibility in such matters, and if she understands the use of the syringe and realizes the need of care, there is little danger of harm. The apparatus for flushing a baby's bowels is a fountain syringe, a soft rubber catheter, one that will fit over the smallest enema point, and a basin to receive the water as it flows out.

Giving the baby an enema

The solution is boiled water, which has been cooled to about 100° F., to which is added one teaspoon of table-salt to each pint. Put the baby on a table, with a thick pad and a rubber under him. His clothes should be turned up, so that there is no danger of their getting wet, and he is drawn down so that the buttocks rest on the edge of the table. A basin is placed just underneath, close enough to receive the water, and the syringe is hung about three feet above.

The directions for enemata and rectal irrigation in Part II are to be followed here, but with a baby the in-

sertion of the oiled catheter must be done with extreme gentleness, because of the danger of puncturing the delicate intestine. It should never be forcibly pushed up, but if it is done slowly, waiting till the bowel relapses from time to time, it can gradually be introduced nearly its entire length. Especial care and precaution

The water is first turned on when the catheter is inserted about two inches into the rectum, in order to clear out the gas, and the accumulation in the lower bowel. After the water comes away clear, which it will generally do while the second pint is being given, the enema point is detached from the catheter, and the abdomen is gently kneaded with the hand to get rid of the remaining fluid.

This irrigation may be ordered twice a day, and is valuable, not only because it cleanses the intestine of the irritating poison which it contains, but because it supplies a fluid to replace what is lost by the watery evacuations, and because the salt stimulates the tissues, and reinforces the blood supply. It should not be continued more than a few days without a doctor's advice, because in cases of extreme prostration the exertion may outweigh the results for good. Effect of the treatment

The baby's bath should be continued through any illness, unless forbidden by the physician. It should, however, be given under a blanket, and the child should be moved as little as possible. When the diarrhœa is accompanied by extreme emaciation, it is sometimes considered that rubbing the child with oil supplements the feedings. Added care in daily bath

Olive oil may be used, and it should be rubbed in thoroughly, particularly over the abdomen. It was once believed that the skin possessed to a considerable degree the property of absorption, and medication was often given in that way. The importance of this func- The oil bath

tion was probably exaggerated, but the good effects of rubbing are unquestioned, and the oil will do no harm, especially if the daily bath frees the pores from any accumulation which might clog them.

Protecting the abdomen and feet

The band or woolen covering ought never to be left off. If it has been taken off, it should immediately be put on, and as the feet are inclined to be cold, it is well to use little socks or stockings, at least until the circulation is re-established and the disordered condition is corrected. Entire change of air and surroundings often does more for the baby than any amount of treatment or medicine, and if he can be taken away at once to where he will be able to breathe purer air, the trouble may be almost immediately relieved. The treatment of whatever sort should be given at once. The danger here lies, as it does in any disease which progresses rapidly, in delayed treatment.

CONSTIPATION

Care the mother should exercise

Constipation is too often the result of carelessness on the part of the person who has charge of the child. From his birth, the condition of the bowels should be given attention, and any disorder should be at once relieved. If the mother is nursing the baby, she can regulate his bowels by attention to her own. She should take daily walks, drink plenty of water, and eat fruits and coarse bread, and, if necessary, use medicines to remedy the constipated condition, which will act upon the baby through the milk.

Gentle rubbing of the baby's abdomen from the right groin up, across and down the left side, with a circular motion of the fingers, often stimulates the action of the intestines. This should be done two or three times each day, but not immediately after a meal.

If a child is held over a small chamber, and the abdomen is gently massaged, twice each day shortly after he has had his bottle, he can be taught habits of regularity at an early age. Teaching the child regularity

A little stimulation to the rectum may be all that is needed. A small cone of castile soap may be cut, and inserted for a moment into the rectum, or a very tiny bit may be pushed up and allowed to stay till it comes away with the defecation. Gluten suppositories may be used, but glycerine is usually too irritating. If the trouble lies in the sluggishness of action in the lower bowel, these remedies will be all that is necessary. If the child is losing in weight, it may be that he is not getting enough food, and if he is nursing, one or two bottles of modified milk may be substituted for the breast feedings. A little cream or beef-juice given him before nursing may help him.

With a bottle-fed baby, the amount of cream may be increased, oatmeal gruel may be added to the food, and the lime water should be omitted. He should have plenty of boiled water to drink, and if this treatment does not prove effective, olive oil may be safely given. Modifications for a bottle-fed baby

Castor oil leaves a baby more constipated than before, so should not be used. Drugs should not be given without a doctor's orders. Neither castor oil nor drugs for the remedy

CONVULSIONS

Convulsions may occur in connection with some disease, such as croup, diarrhœa, some of the infectious fevers, or as a serious brain trouble, but they are also caused by a disordered stomach, difficulties in teething, and extreme nervousness. Causes of convulsions

The treatment in any case is the same, and measures for immediate relief can generally be taken before it is possible to summon a physician. The head should

be kept cool with compresses of cold water, or with bits of ice in an ice-bag or piece of oiled silk. The extremities should be heated, and for this purpose the child should be given a mustard foot-bath—not hotter than 95° F. Two tablespoons of mustard to a gallon of water are used, and the feet and legs should be kept covered with the water till they are quite red. After the bath, he should be wrapped closely in a blanket, which will induce perspiration.

Treatment before the doctor comes

If the child is small, and conveniences are at hand, the entire body can be immersed in the bath. If a bath-thermometer is not available, the bared elbow may be used to test the temperature of the water, using it no hotter than can be comfortably borne if no mustard is added, remembering that the mustard increases the stimulating action of the bath, so that it is given at a lower temperature.

Giving the warm bath

If the convulsions continue, an enema should be given, for pressure in the bowels is very liable to cause them. If the bath has relieved the condition, a dose of castor oil will answer the purpose as well as the injection.

TEETHING

Teething can not be reckoned among diseases, and is spoken of here very briefly, simply because it makes a child more susceptible to other ills, and special care should be taken to keep all the conditions of his life as normal and hygienic as possible.

Teething makes susceptible to other ills

He should spend as much time as he can in the open air, and the feet and legs should be protected with stockings and soft kid moccasins if short dresses are worn, and the care in the preparation of the food should be increased. The appetite may be variable, and the feedings should not be forced.

When the teeth appear

The first teeth usually appear at about the sixth month. At about the fifth month there begins to be an increased flow of saliva, and the baby will need bibs, generally lined with some sort of waterproof cloth, to protect his dresses.

Restraining from thumb-sucking

Care must be taken that he does not form the habit of thumb-sucking at this time. A little baby can be restrained by drawing his dress sleeve down over his hand and sewing it over and over across the end. A small bag tied over the hand has the same effect.

If there is fever and restlessness, frequent sponge baths in alcohol and water will be found very quieting. Sometimes the gums become so red and swollen that lancing is necessary and gives great relief.

MILK CRUST

Cause of milk crust

This is most frequently seen on the head, and is often caused by lack of cleanliness over the fontanelles or open spaces between the bones of the scalp. It is caused by the inaction of the tiny glands which manufacture oil, but it is allied to eczema, and should receive similar treatment.

Treatment

The hair should be cut as close as possible, and the crusts softened with oil or a simple ointment, like that made from boracic acid. It may be necessary to leave the ointment on overnight, after which the head is washed with warm water and castile soap.

The scalp should be washed daily with warm olive oil, and fresh ointment, spread on a linen cloth, should be applied.

The scalp is sometimes neglected on account of fear of injuring the delicate brain beneath the opening. There is very little danger of this with the moderate energy required to keep it clean.

ERUPTIVE DISORDERS

Eczema is another disease of the skin which attacks children more generally than adults. It may appear with the formation of crusts over the affected part, or the surface may seem reddened and moist.

Treatment of eczema

In any case there is intense itching, and as scratching may retard recovery very materially, the first requisite in its treatment is to protect the parts from the child's hands. The physician will advise the ointment or powder which should be applied, and the use of water should be avoided for the process of cleansing, oil being used instead. Rest and quiet, with the thorough application of the remedy, generally give good results

Cause is often in digestive disorders

On very little babies there sometimes appears a red rash like tiny pustules, which is found especially on the face and neck, and about the buttocks. It is generally due to a slight digestive disorder, and needs no treatment beyond powdering for comfort.

Indigestion in children is often accompanied by a rash, and it may occasion alarm because of its resemblance to measles. Keeping the child warm and quiet, giving a warm bath and a laxative is always safe treatment, and a day or two will decide if the trouble is at all serious.

HIVES

Treatment of hives

Hives or nettlerash is another form of eruption, which is very uncomfortable though not at all dangerous. The itching is extreme, though one characteristic of the disease is that the blotches are not raised and apparent all the time. Bathing with water containing bicarbonate of soda (baking soda) soothes the irritation.

PRICKLY HEAT

Prickly heat is common in the summer, especially if a baby is kept too warm and has not frequent sponge baths.

When the rash is troublesome the baths may be of tepid water, with a little vinegar or baking soda added. It may be wise to put on a short slip of cotton or linen next the skin, because the woolen shirt may be too irritating at this time.

Remedy for prickly heat

RINGWORM

Ringworm is a disease caused by the action of a parasite, and is seen sometimes on the scalp and sometimes on other parts of the body. When it attacks the scalp it causes the hairs in the affected part to break off from lack of nutrition.

It can be conveyed from one person to another, and for this reason painting with iodine or with collodion is often the treatment, as this serves the double purpose of protecting other children from infection and of keeping the diseased area from dust and other irritation.

Ringworm is conveyed from one person to another

Ointment of salicylic acid or carbolized vaseline is effective and any curative measures must include thorough soap and water cleansings. The name suggests the circular form of the appearance.

Treatment

CROUP

Many of the diseases which used to be looked for as a matter of course during a child's life are much less common now that more reason is used in the feeding, clothing, and general care.

The ordinary spasmodic croup may result from exposure or a sudden change from heat to cold, caused by wearing an unnecessary amount of clothing, or

Causes and symptoms of croup

from an overloaded stomach. The attacks are generally sudden. The child wakes in the night with hoarse breathing and the rasping cough which is so characteristic of the disease that once heard it is always recognized.

Treatment

Flannels wrung out of hot water and placed about the throat give relief, and the heat and moisture may be kept in by a piece of oiled silk. A mustard bath or a foot-bath is often given. Vomiting and a free evacuation from the bowels generally give great relief. The physician will probably give syrup or wine of ipecac, followed by drinks of warm water till vomiting results.

The attack is often repeated for several successive nights unless precautions are taken. These precautions are light diet, quiet and rest, and free movement of the bowels.

Membranous croup

Membranous croup is altogether a more serious affair, and is classed by many physicians with diphtheria. The especial danger lies in the growth of the membrane in the throat. The character of the cough will indicate to the mother whether the throat is clear.

Safeguards in all cases of croup

In all cases of croup the air should be kept moist, and this also gives great relief in bronchial colds. An apparatus called a vaporizer can be bought at a drug store, but it is rather expensive, and the same effect can be obtained with a teakettle and a few feet of rubber tubing with a bore large enough to go over the spout of the kettle.

Arrangement to secure moist inhalations

Very often it is sufficient to keep the air about the patient's bed in a moist state, but sometimes direct inhalations, medicated or not, are given, and in the case of croup the doctor may order a tent to be arranged over the crib so that the moisture may be

confined. A screen or a clothes-horse may be placed about the head of the crib, and sheets may be hung over it in such a way as to keep in the steam very successfully. Special methods of inhalation have already been described.

RICKETS

If a child has improper food, or unhygienic surroundings, if he is fed exclusively on condensed milk or is kept too long at the breast, he is likely to develop a disease called *rachitis,* which, while not being of a serious nature in itself, impoverishes the system so that it is very susceptible to tuberculosis, and, in fact, to any disease. How the disease is induced

If the cause of the trouble is recognized and removed, and the child's food and exercise are regulated with regard to the highest ideals of health, entire cure of the disease is possible.

The head of a child with rachitis is generally larger than normal, and it is inclined to perspire very freely so that the pillow may be quite wet. The blood is of poor quality, so that the child is very white and the flesh is soft and flabby. All the tissues are lacking in tone, but it is the bones which show most plainly the results of the trouble. At birth the bone substance is largely cartilaginous, but the hardening or ossifying process is rapidly carried on till it is possible for a child to support the weight of the body on the legs, the bony plates of the skull no longer have openings between them, and the entire framework of the body is more rigid and unyielding. Symptoms of the disease

When a child has rickets this hardening of the bones is not complete, and there is consequent danger of deformity as an effort is made to sit up or to walk. The muscles of the back are insufficiently de- How deformity results

veloped to keep the spine straight, so that a curvature is very noticeable; the weight of the body on the bones of the pelvis forces them out of place, and if an effort is made to walk the legs are almost surely bowed or knock-kneed.

The pelvic deformity may cause no discomfort till later in life, but if the baby is a girl there may be serious or even fatal consequences from it at the period of child-bearing. Other symptoms which indicate this disease are a protruding abdomen, enlarged joints, constipation, and restlessness.

Food for the child with rickets

The child needs an increase of fat in the food, and may occasionally be given a strip of boiled bacon to suck. The bacon should be thoroughly cooked, but not crisp enough so that he can break off bits in his mouth.

The food should be varied, and of course his age will decide how much deviation is possible, but the existence of the trouble indicates that more nourishment is required. Beef-juice, broths, and fruit-juices are advisable, but starchy and sweet food should be limited. Daily baths and thorough rubbing must be given, and plenty of fresh air and sunshine are always prescribed.

CHOREA, OR ST. VITUS'S DANCE

How St. Vitus's dance is brought on

"Chorea is a disease characterized by irregular spasmodic contractions of different muscles or sets of muscles, especially of the upper and lower extremities." It attacks children chiefly, usually at about the period when the second teeth are coming through. It is a nervous disorder, and may be brought on by fright or by the excitement of competition in school. It often seems to accompany rheu-

matic and heart disorders, though many times the attack seems quite independent of other diseases.

The twitching of the muscles may be slight, but in severe cases it becomes so constant and violent that the child can not walk or speak, take nourishment, or even lie quietly in bed. During sleep there is usually rest. Symptoms

A child showing any signs of chorea should be taken at once from school. Absolute rest in bed is the most effective treatment for the first week till improvement begins. After that the exercise should be moderate, there should be no mental excitement, and the diet should be nourishing and easily digestible. Milk and eggs should be given in plenty, and koumiss is advised if the child has a liking for it. Treatment, diet, and rest

Above all the night should be restful, and a physician will probably prescribe a sedative if there is a tendency to sleeplessness. The society of other children is not advisable, because if they are inclined to be nervous at all they have an inclination to imitate the awkward motions of the patient, and may even contract the disease. On the other hand she is less able to control her movements when she is embarrassed by observation. How nervous children may acquire the disease

There should be no thought of putting her back into school until recovery is complete, and all mental strain should be avoided for a year or more, in order to guard against the possibility of a second attack. It should be remembered that a healthy body is the first requirement in the child's equipment for life, and the early years of school count very little when weighed against a loss of physical or nervous vigor. The patient needs long rest

VI

CONTAGIOUS DISEASES

Mumps—Whooping-Cough—Measles—Chicken-Pox—Scarlet Fever—Necessary Precautions in Contagious Diseases—Scarlet Fever is Infectious—Diphtheria

IT should not be taken for granted that a child must go through the entire list of contagious diseases. The susceptibility to most of the diseases decreases with the years, and as a general rule we may say that the mortality is less among older children than among babies.

A child need not go through the contagious diseases supposed to be incident to childhood

The diseases of children are regarded too much in a fatalistic way, as if they were a foreordained ill, with little attempt at mitigation. On the other hand, there is no need of borrowing trouble and of avoiding contagion by unreasonable caution and overcarefulness. The mother who takes her children out of a neighborhood when a case of measles is reported there, is quite as likely to find it in the house with her at the end of her journey.

MUMPS

This is a disease affecting the salivary glands, especially the one lying back of the ear.

Symptoms of mumps

There is difficulty in swallowing and acute pain, especially when taking food. The trouble begins with chill, headache, and a general feeling of discomfort.

The period of incubation, that is, the time between exposure and the first symptoms of disease, is

from eight days to two weeks, and the pain and swelling begin to subside after four or five days.

Relieving the pain of mumps

Cloths wrung out of hot water help to relieve the pain somewhat, and there is little treatment besides this. As is usual in any disease, the bowels must be kept open, the diet should be light, and the child should be kept quiet in a well-ventilated room of even temperature. This disease is both infectious and contagious.

WHOOPING-COUGH

Whooping-cough is an infectious disease, and begins very much like a catarrhal cold. The characteristic "whoop" may not be heard for ten days.

The attacks of coughing are spasmodic, and the feeling of strangulation is very distressing. The fits of coughing often end in vomiting, though otherwise the stomach seems unaffected.

Special instruction to the sufferer

The child should be instructed to close his eyes while he is coughing, because of the strain which sometimes causes them to become crossed.

He should be kept out of doors as much as possible, if it is warm weather, and if the fever which often is present in the beginning has subsided. If the autumn comes on before the cough has stopped, it may run on and prove troublesome during the cold weather. For this reason a change of air during the later stages may be advisable, since it often shortens the attack.

Fresh air treatment

MEASLES

Measles is an extremely contagious disease, and spreads so rapidly that it is liable to become epidemic. The period of incubation is from eight to ten days.

The first symptoms are those of an ordinary cold

Symptoms of measles

in the head. There is marked influenza, the discharge from eyes and nose is watery and profuse, and is accompanied by a cough. This is the period when there is most danger of contagion. There is generally some rise of temperature and headache.

The rash of the measles

A physician can detect the rash in the throat and the roof of the mouth before it appears on the skin, where it generally can be seen on the fourth day, first on the forehead, then upon the neck and chest, rapidly spreading all over the body. It is a dull reddish color, and feels distinctly rough under the fingers. The tiny spots soon run together, leaving crescent-shaped patches of clear skin between.

Length of the patient's seclusion

The rash remains in evidence for two or three days usually, and with its disappearance the other symptoms gradually subside. Desquamation, or peeling of the skin in fine scales like bran, follows, and the child should be kept away from other children for two weeks after this has entirely ceased.

As a rule measles is not a difficult disease to care for. The child should remain in bed, carefully protected from draughts, but not too warm; the room should be well ventilated and kept at a temperature between 68° and 70° F. The diet should be light, and the bowels should be kept open.

The eyes are generally inflamed, and they are extremely sensitive to light.

Special care of the eyes and mouth

The room should be darkened, and the eyes should be bathed two or three times a day with a boric solution. Lack of care in this detail sometimes leads to a permanent weakness. The mouth also needs frequent rinsing.

The warm bath

During the peeling a warm bath, under a blanket, should be given each morning, after which the whole body should be rubbed with vaseline. This prevents

the scales of skin from flying about, and also allays the itching.

Complications in measles

The complications in measles are what make it a disease to be feared. With babies and very small children there is a liability to pneumonia which makes watchful care necessary, and which calls for a physician's supervision over the condition of the lungs.

Lessening the danger of contagion

The child should be completely isolated, and if possible the person caring for him should have nothing to do with the rest of the family. This is not practicable in homes where the mother must be nurse and housekeeper as well, but she can lessen the danger of contagion by proper care.

Cotton dresses should be worn whenever one is caring for the sick, and if the mother keeps a large cap and a garment like a long-sleeved, high-necked pinafore just outside the chamber, and always wears it when waiting on the child, the risk of unnecessarily communicating the disease is reduced. She should be careful to wash her hands before touching anything outside the sick-room and should never use for the child a towel or handkerchief which is to serve any other purpose.

The discharges from the nose and eyes are the most direct means of communicating the disease, and since the complications may be so serious we should be very conscientious in our efforts to keep other children from exposure.

Disinfecting the linen used in measles

The clothing and bed-linen used about the child should be soaked in a solution of carbolic, one ounce of the acid to two gallons of water. They should then be boiled for half an hour before they are handled by the laundress.

Before the child leaves the room he should be given a full bath in a 1-5000 bichloride solution.

Then he may be wrapped in a clean blanket and taken into another room, where fresh clothing may be put on.

Disinfecting the room

The room must be fumigated before it is used, and in most towns this is put into the hands of the Board of Health. In the country, where there is no such provision, it will be done under the doctor's supervision.

CHICKEN-POX

Contagion of chicken-pox

Chicken-pox is a mild contagious disease, which attacks children of all ages. It may be communicated by a third person or by direct contact, and may appear at any time between ten days and three weeks after exposure. The liability of contracting it is much less as time goes by. It is an intensely uncomfortable disease, on account of the itching, and because scratching must be prohibited.

The rash or pox

A slight fever may introduce it, but the rash is often the first indication. This appears first as reddish pimples, which come out in successive crops all over the body, being thickest on the back. The spots soon become blisters, which dry, leaving crusts. These may drop off in the course of five days, and they may remain for over two weeks.

Relieving the irritation

If the eruption has been deep or if the crust has been removed before it is loosened there may be slight scarring, but this is not usual. If the body is rubbed with vaseline the irritation will be relieved, and the scratching must be prevented because of the danger of poisoning if the finger-nails come in contact with the open sore.

The patient's isolation

A child should be kept in bed as long as the fever lasts, and in fact while the eruption is appearing he will probably be most comfortable undressed. He

should not be allowed to play with other children till the skin is quite clear.

Fumigation, while not so essential as in more serious diseases, is an advisable course when there is any chance of exposure to other children.

SCARLET FEVER

Scarlet fever is one of the most serious of the contagious diseases, more by reason of its complications and the illnesses that sometimes follow it than by its direct results. Children under one year old are less susceptible to it, and it is supposed that grown persons rarely contract it.

How scarlet fever is communicated

One attack generally renders a person immune. It is communicated by direct exposure, by contact with a third person, with articles that have been used about the sick-room, by being in a room which has not been fumigated.

Symptoms of scarlet fever

The first symptoms generally make their appearance about a week after exposure, though the time may vary from three to twelve days. Increase in temperature is very rapid, making us suspect that it is more than an ordinary cold, even if the acute sore throat did not alarm us. Nausea and vomiting are generally early symptoms, and with little children there may be convulsions. White spots appear on the tonsils, and the appearance of the tongue is very characteristic—a white coating dotted with bright red spots, giving it the name of "strawberry tongue."

The rash

The rash, which generally comes out on the second day, is bright red, finer than measles and so close together that the whole body looks scarlet. It is seen first on the neck and chest, and rapidly extends over the whole body. Ordinarily the rash remains out for about five days, but the desquamation

Special care in the desquamation

often takes two and sometimes three weeks. The skin is shed in much larger scales than in measles, and this period of the disease is considered the most contagious. Care must be taken to keep these scales from being scattered about the room, and the rubbing with oil or vaseline is of use on this account.

Baths and ventilation

Washing the mouth, spraying the throat, and giving frequent sponge-baths if the temperature is high help to make a child less restless, and relieve the suffering. If the fever is high, ice-bags or cool compresses on the head often quiet the restlessness.

Particular care should be given to ventilation, and to keeping the room at an even temperature, and the food should be liquid, and diluted if the child is still on the bottle.

Watchfulness against colds and resulting kidney disorder

The skin with its glands assists in the work the kidneys carry on, of ridding the system of waste matter. During desquamation there is especial danger of catching cold, which interferes with this function. It then happens that an extra burden is laid on the kidneys, and they are very liable to become diseased. This is one of the complications to be guarded against in scarlet fever, and it is well for the mother to save specimens of the child's urine for the doctor's examination.

This trouble may appear after the child is apparently well, so the watchfulness must not be relaxed, and the doctor must be consulted if the urine at any time seems unnatural in color or quantity. If the limbs or eyelids seem unduly swollen or puffy it should be at once reported.

Earache with scarlet fever

Earache sometimes still further complicates the disease, as it may leave a child permanently deaf unless it is attended to at once. It is due to the fact that the inflammation of the throat has extended up

into the ear, and the physician will puncture the ear-drum, which gives relief and often saves the hearing. When the inflammation subsides the small hole in the drum will soon heal over.

PRECAUTIONS IN CONTAGIOUS DISEASES

All the precautions necessary in other contagious diseases are to be observed here, and with doubled care, since the fever itself and its complications are more serious, and the dangers of spreading the contagion are increased.

Care in the attendant's dress

The attendant should never go from the sick child into rooms where there are children, in the same clothes that she has worn when caring for him. The cap and long gown should always protect her hair and dress.

The sick room utensils

The dishes and utensils used for him should be kept by themselves, and boiled before they are again used by the family. Above all, the scales of skin should not be scattered about. Rugs or bed-clothing should never be shaken out of the window, and everything used about the child should be soaked in carbolic and boiled before being washed. A doctor or nurse going about from house to house finds strange inconsistencies in the care of contagion.

The rugs and bed-clothes

Instances of spreading disease through carelessness and lack of thought

They do not wonder at the spread of disease when they find a seltzer-water bottle at the bedside of a child who is in the worst stage of desquamation. He uses it himself whenever he wishes, and it is returned to the shop, bearing with it a chance for direct infection. The milk bottle is used in the same way, and then taken down to be washed with the household dishes.

The mother goes into the sick-room, takes a corner of her apron to wipe her child's forehead, and with no change, and without a thought of danger, returns to

her other charges, who cling to her skirts, and are almost sure to come down with the disease at the end of the usual period. It is almost impossible in a home where the rooms are not large, and where the helpers must be few, to completely isolate patient and nurse, and to observe with absolute consistency all the ideal precautions, but much of the carelessness we remark is quite needless, and is born of lack of thought, rather than of ignorance.

While speaking of the dangers of contagion it will be well to emphasize also the fact that scarlet fever is extremely infectious as well.

SCARLET FEVER IS INFECTIOUS

A nurse who has been caring for a scarlet fever patient should absolutely refuse to go from him to a surgical or maternity case. The chances of infection are many where there is an open wound, and in childbirth both mother and child are especially susceptible, and there have been many cases of blood-poisoning resulting from lack of knowledge on this subject. The danger is even greater, of course, when the patients are in the same house, and in that case the isolation should be more rigorously enforced, and on no account should the nurses or attendants go from one sick-room to the other. A sheet hung across the doorway of the patient's room, and kept wet with a deodorant or with plain water, is an additional safeguard.

Safeguard in a suspended wet sheet

At the end of the convalescence, the nurse and patient must take baths in bichloride of mercury, followed by warm soap and water. Even the hair should be carefully washed, and afterward the clean clothing must be put on outside the sick-room.

Care before leaving the sick-room

The utmost precautions regarding fumigation should be observed. Anything which can not be ren-

dered absolutely germ free must be destroyed. It is wise to provide the child with inexpensive toys and books which may be burned when he leaves the sick-room. Most chambers are not very well planned for contagious disease. We hardly realize how many catch-alls for germs there are until we carry a patient through some such illness, and the question of disinfection comes.

Precautions regarding fumigation

A thorough fumigation with formaline vapor is probably effective enough to make the ordinary furnishings safe for use, but unless one is assured of the results, the risk seems hardly worth taking. If the walls are papered, it is much wiser to have them scraped and repapered or painted. Woodwork and paint should be washed with a disinfectant, as well as being subjected to the general fumigation.

Effective fumigation

When a house is large enough, it is a very good plan to set aside one room as a "hospital ward." It should be sunny and airy, with facilities for easy ventilation, and no furniture which can not be easily cleaned. Hardwood floors, painted walls, an iron bedstead, and no draperies are some of the essentials, all of which have been more fully discussed in a previous chapter. A bathroom or running water and a closet should be close by, and if there could be a separate staircase, so that the room could be completely isolated, the conditions would be still more ideal.

An ideal "hospital ward" in the home

DIPHTHERIA

Diphtheria is also an infectious and contagious disease, often resulting from imperfect sewage. Careful examination of drains and pipes should be made wherever there is a case of diphtheria, in order that the spreading of the disease may be prevented.

Search the cause of diphtheria

It attacks children of all ages, and adults as well,

and one is not immune after one attack. It results from a micro-organism, which causes the growth of a false membrane over the lining of the throat.

Symptoms of diphtheria

The tonsils are first attacked, and it is there that we first notice the exudation, which is of a characteristic gray color. In children, there may be more delay in recognizing the disease, because they do not make us understand their symptoms. Any sore throat with spots on the tonsils should be regarded as suspicious, until it can be proved to be a simple disorder.

The onset

The onset is very like acute tonsilitis, with headache, chilly sensations, and pain and soreness in the bones and muscles. The glands in the neck are usually somewhat enlarged and in very young children this may be the earliest noticeable sign. The temperature is not always high, though it may run to 105°. The attack may begin twenty-four hours after exposure, or it may be three weeks before there is any sign of it.

Examination of exudation

A suspected case of diphtheria should be immediately isolated, and a doctor will remove some of the exudation in the throat, and will subject it to microscopical examination, in order to pronounce definitely upon the nature of the trouble.

Treatment

In the meantime, the patient must be kept very quiet, great care must be taken to keep up his strength with nourishment, which should always be liquid, and generally some sort of stimulant will be ordered for the same purpose, as the prostration is extreme. The treatment of diphtheria consists of strict regard to hygienic conditions, in the administration of remedies to counteract the effect of the poisonous germs which produce the disease, and by operation, either intubation or tracheotomy.

The second form of treatment consists generally of the injection of what is called antitoxin serum. This

treatment is the result of investigations in bacteriological laboratories, in order to find a fluid, which taken into the blood of a patient suffering with diphtheria would arrest the growth of the bacteria which cause the disease. This fluid is serum from an animal which has been rendered immune to the disease by inoculation with the poison which brings it about. Antitoxin serum

When physicians began to use antitoxin, so many disorders seemed to arise in consequence that it came to be regarded very unfavorably by many persons. Its value as a remedial agent in all instances is perhaps not unquestionably established, since its opponents can still point to some cases where its administration has been attended with serious consequences. The conditions under which it is prepared have improved, and the results are in general so good that with most physicians its use is a routine measure in cases of diphtheria. This treatment is, however, left entirely to the doctor's judgment, the attendant's part being to follow orders with explicit exactness. Use of the serum in diphtheria

The throat and nose will require careful swabbing, and as the discharge is extremely poisonous, the nurse must be careful not to receive any of it on her face or clothing. The cotton used for the throat as well as the cloths which receive the expectoration must be burned. Bed, linen, dishes, and room must be most carefully disinfected before being used again. Burn the throat and nose swabs

With children, the disease progresses so rapidly that sometimes the breathing and swallowing are almost entirely obstructed by the swelling of the air-passages before the real nature of the trouble is recognized. In such a case a metal tube is sometimes inserted, either through an incision made from the outside into the breathing passage, which is called tracheotomy, or through the mouth, a process known Intubation and tracheotomy

as intubation. An atmosphere of steam greatly relieves the difficult breathing, as it does in bronchitis or in croup.

Atmosphere of steam

The tent and vaporizer described in the foregoing pages on croup may be used here with good results. If any drug is used in this connection, it should be one prescribed by a physician.

As with scarlet fever, the complications are to be most carefully guarded against. The heart becomes very weak, and any violent exertion, such as sitting up suddenly or reaching for something, is an actual danger. Even very mild cases may be followed by a slight temporary paralysis, more often manifested in the throat, when it interferes with speech in small measure and with swallowing to a considerable degree. The general condition after diphtheria is one of great exhaustion, and associated as it is with weakness of the heart, it needs time and rest and nourishing food in order that health may be firmly re-established.

The weak heart with diphtheria

Keep head and heart clear in nursing these diseases

While scarlet fever and diphtheria are most serious diseases and are sometimes attended by alarming consequences, it is a comfort to remember that they may take a mild form, when recovery is speedy and uneventful. This does not mean that care and watchfulness can be relaxed in any case, but it will perhaps remove some of the unreasoning horror, which really incapacitates a mother from making her best effort.

VII

PROBLEMS OF PUBERTY

Development of the Child—Puberty—Instruction to the Child—Masturbation—Menstruation—Bathing during Menstruation

DEVELOPMENT OF THE CHILD

THE physical and mental development of children proceeds along certain well-defined lines—as their relations to their environment become more complex, their needs are correspondingly multiplied.

The first requirements are the nourishment of the body and the growth of its tissues to fit it for its place in life, hence the early development of function is largely confined to the digestive tract—the increase in the size of the stomach, the appearance of teeth, and the gradually acquired ability to take and digest a varied diet.

First the digestive tract

Locomotion opens the world to the child, putting it into communication with things and persons outside itself. The relation, however, lacks the personal element. It is Nature, not personality, that impresses him; in fact, he is living outside the world of social relations.

Locomotion

The power of observation comes to him before he understands what he sees, and the last faculties to develop are those that concern his life with his fellows.

The power of observation

Interest in them, friendliness and affection are aroused first, and Nature reserves her gift of sexual power till she has fortified her children to withstand its dangers, and has given them power and knowledge to use it wisely. This is what puberty ought to mean—a

What puberty means

coming into the full inheritance of vigor, strength and power, and that is what it can mean, if we ever open our eyes and see where Nature and the evolution of her laws are leading us.

PUBERTY

The age of puberty

The "age of puberty" extends over the years between thirteen or fourteen and sixteen, various circumstances modifying the time of development, climate, race, occupation, and method of living causing great differences. The changes that are taking place are those concerned in the growth and development of the generative organs, but this rapid growth entails very significant changes in the mental and nervous nature, which make the need of oversight and careful guidance especially important. In either sex, the changes are preparatory to the establishment of the function of reproduction.

Physical changes in the boy

In both man and woman there is the growth of hair about the pubis and in the armpits. With males this growth is found also on the face and chin, and often exists more generally over the surface of his body than on that of the female. The shoulders broaden, the vocal cords lengthen and the voice grows deeper. The changes in the generative organs are the increase in size, the strengthening of muscular power, and the secretion of the fluid containing the reproductive germ.

Physical changes in the girl

The physical changes in woman are somewhat more general, because her form must be adapted for the work of child-bearing. There is a general filling out of the frame and a broadening of the hips as the pelvis increases in size. The breasts rapidly begin to develop, and the quality of the voice is altered.

The internal changes, however, are more marked.

Immature ova are present in the ovaries from birth, but at this time there is established the periodic discharge of one or more of these ova, which, with the bloody fluid that accompanies it, constitutes menstruation.

Mental and spiritual changes

If these functional changes were all, there would be reason enough for increased care regarding the hygienic conditions, in the lives of young girls and boys at this period, but the differences that become manifest in their tastes, in their characteristics and in their attitude toward their fellows in the family and out of it, denote a modification in the nervous system which works the miracle of transforming the boy to a man and the girl to a woman.

This rapid evolution is not without its painful side. The grace and unconsciousness of childhood are gone; a keener sensitiveness, a fear of criticism, and often an occasional deep depression of spirits make themselves felt. There is besides a deepening joy in existence. A feeling of responsibility has awakened, which may have interfered with the child's spontaneity, but high ideals, ambition, and the desire for the best things of life are stirring within the heart, and the time is ripe for fixing the nobler aspirations. These feelings are not well defined ideas in the child's mind, which is chiefly a seething chaotic mass awaiting creation.

INSTRUCTIONS TO THE CHILD

The child's problem of the reproduction of the race

As the child approaches the age of puberty, speculations inevitably arise in his mind about the problems of life, which have to do with his own development and with the reproduction of the race. This is the time when he should have careful, conscientious instruction from his parents or other close friends,

before unscrupulous enlightenment of most repulsive detail has been given him by vulgar and perhaps debased comrades.

The simple explanations from plants and lower animals

There is no reason why this knowledge should come with a shock to a child, if due preparation for it has been made by the parents. Life is always an interesting subject to him, and it may be studied and its different processes explained with absolute simplicity in plants and in the lower animals. He will make no application to human functions until the questionings begin to stir and then he will draw his conclusions quite naturally, and there will be a much less violent adjustment of his point of view.

The old-fashioned pitiable deceptions

A child who knows Miss Morley's "Song of Life," or who has been shown how some plants bear both pistillate and staminate flowers, and the methods of fertilization when these flowers are borne by different plants, can not long be deceived by the tiresome platitude about the new baby's journey in the doctor's bag. Deception is not necessary. It often does not deceive, but almost invariably destroys confidence. It is often legitimate to refuse to answer a child's questions, but one gains more by telling him that he must wait till he is older than by a falsehood that may seem plausible, but which he will inevitably recognize later as a deliberate untruth.

Nature's work the mother's best assistant

Nature's work is the mother's best assistant, and the view that one gets of life processes in that way has a beauty and a dignity which one can ill spare, but which in our halting human account of them we do not always convey. Reverent, dignified, straightforward expression is what a child should receive. There should be no veiled language, but the portion of the fact which is to be given should be told with simple exactitude.

Above all he should be made to feel that the questioning is expected and that the feelings that prompt it are understood, and that the parents are his natural confidants, with whom he can talk over his perplexities. Do not disturb the confidence of the child

When the mother observes the first changes which accompany puberty, she should explain to the boy or girl the meaning of them. In the case of the boy there is not the same necessity for this that there is with a girl, though we must not lose sight of the fact that the same sort of forces are seething within his nature and the time is perhaps more critical with him than with his sister. The external signs may distress her exceedingly, and if the menstrual flow comes on before she understands about it there may be serious consequences resulting from her ignorance. She may resort to hot water or sea baths or some such violent measure, which will very probably check the flowing, and the nervous shock may have serious consequences. The mother explaining the meaning of the changes

Not to explain the changes is, besides, unfair treatment—which we should above all things avoid in our dealings with children.

We have spoken of the gradual evolution of the faculties of a child in the order of their complexity. In the beginning of each, instinct rules its use until reason enters in.

The full development of the sexual power brings with it a riotous flood of sensations. The child who has always been swayed by his sensations, who has gained his knowledge and had his pleasure through the sense-perceptions, finds that with the door to adult life thrown open to him the capacity for sensuous enjoyment has deepened. The increase in the capacity for sensation

This realization of the character of the sexual

Teaching self-control

life may be delayed long past the age of puberty, and certainly will not be felt till the development of the sexual function is complete, but certain teachings can forewarn him of the need of self-control and of the danger of following the guidance of instinct. The surest safeguard, the best preparation that can be given a child for the conflict between these surging forces that rise to do battle within him is that health of mind and body which comes from well-balanced development.

When the development has been uneven

When the physical and emotional sides have been hedged in and their expression restricted or limited to the playtime, when it is as a rule quite undirected, there are fewer pleasurable activities to absorb the attention, and considerations of the new sensations are held in exaggerated importance. On the other hand the mind is incapable of forming judgments or of exerting will power if the physical education has been at the expense of or unaccompanied by the intellectual. A girl needs this balance no less than a boy.

The old fable of woman's creation

It is quite time that we cast aside the notion that the sole purpose of a woman's creation was to serve man's pleasure and bear him children. Nature does not waste forces in that way. Her lower forms that are born, bring forth their young and die, evidently serve an admirable end; but she has used no elaboration of design in their construction.

Motherhood not woman's sole end

She has filled a woman's life with possibilities, and has emphasized the fact that motherhood is not the sole end, by extending her life and vigor far beyond the child-bearing period. Even when we believe in the laws of gradual evolution we fail to realize that they are even now in progress and that mankind is reaching out toward a higher degree of development physically, morally, and intellectually.

In the work of life women stand with men

Women stand with men in much of the work of life. They ought at least to be given equal chances in their early education, before they can choose for themselves what they will attempt to accomplish in the later years.

The sex distinction in childhood baneful

The sex distinctions in childhood are largely a matter of training. The difference is emphasized by adults long before the children themselves are at all conscious of it. The dress accentuates it, but most of all the repression of physical activities marks the dividing line.

Womanliness

Where can the advantage of this method lie? We hear it said that a girl loses her femininity when she romps and plays with her brothers, and shares their active sports. Is it femininity that we want in a woman? Womanliness is the sweeter quality, and gains through vigor of body and mind, as manliness is linked with courage and strength.

Rules of conduct for children

The children then of both sexes should be associated in their work and play with no attempt at emphasizing sex. They are very primitive little animals, and many of the accepted tenets of civilization seem to them like arbitrary dogmas. Their rules of conduct may be fashioned on very simple lines, being based largely on the elemental principles of fair play and consideration for other persons who form with them their social world.

As they gain physical control in their sports and hand work, they will be progressing step by step in mental balance, which will be shown when real decisions are to be met.

Mental sway in youth

In childhood the physical rules; in youth the mind should hold sway over the emotions. Real self-control is attained through activity rather than through repression, and the strictly intellectual life represents

the fullest and the richest attainment no more truly than does the strictly physical.

MASTURBATION

Educators perhaps even more than parents realize the child's peculiar need of oversight not only during puberty, but throughout the earlier years. Their reports show an appalling prevalence of the habit of self-abuse, or masturbation, a habit which may be self-taught, but which is often communicated from older to younger, which possesses an overmastering power, and which if not overcome is followed by unmistakable evidences of general deterioration.

The habit of self-abuse

The care of the external organs should be taught a child, just as dressing himself or bathing is taught him. Careful cleansing should be insisted upon, for the irritation arising from neglect is often the cause of masturbation, but he can be made to understand without a question that the parts are of delicate construction, as the eye and ear are, and that there is danger of injury by unnecessary handling.

Need of the teaching of care and cleanliness

Eczema or a like eruption may appear in the groins or about the vulva, when the irritation is unbearable and the concentration of mind on those parts and the nervousness which the intense itching occasions are conditions which should receive prompt attention. Intestinal worms are also said to have been the reason for a child's contracting the habit.

Painful difficulties which lead to self-abuse

With boys the most frequent cause is a slight defect in the construction of the penis. This condition is known as *phimosis,* and is indicated by the tightness of the foreskin, which can be rolled back with difficulty. The opening is likewise so small that the urine is voided with great pain and after pro-

longed effort, and during the process the foreskin is sometimes filled up, causing intense pain.

Circumcision is the treatment for such a condition, and as it is a very simple operation, attendant with no serious consequences if properly performed, it is always to be advised. The remedy of circumcision

Parents should make very sure that there are no functional disorders which the child is concealing, either from ignorance or from a feeling of shame. If the parents are also the child's comrades and friends, confidence will be natural and one great source of danger will be shut out. Children should not sleep together if it can be avoided, and the habit of lying in bed after they are awake should be discouraged. Avoiding the forming the habit

A mother must be very careful in regulating the dress of her children, to see that the underclothes and the trousers do not constrict the body in any part, and that there is no unnecessary rubbing or pressure. The same care should be taken with the night-clothes, and the closed night-drawers, which are the best for both girls and boys, should be made large and full. Care of the clothing

The position which children take in bed is also important. The mother or nurse should look out for that as well, and teach them to lie on one side with the legs flexed. Position in bed

Care should always be taken in the choice of companions for a child. As a rule it is better that he associate with those of about his own age and of both sexes. Knowledge of an undesirable sort is so often brought to children by older comrades that unless the character of the older girls and boys is known it is better to avoid close intimacy with them. Choice of comrades

Choice of a school

The choice of a school is a very important one. Teachers can tell what a tendency there is to this particular evil and how quickly it makes itself apparent in a school. There ought to be a stronger spirit of co-operation between school and home, and also a keener sense of responsibility on the part of teachers. Parents too often resent the interference of teachers, and refuse to recognize wrongdoing in their children, even when it is pointed out to them.

Outlet for natural energy

If it is possible to choose a school where at least half of the working day is given up to hand-work and physical exercise, a long step toward ensuring the safety of the children will be taken. Occupation of the mind is an essential, and that is much more likely to be found with occupation of the hands than when the tasks involve mental processes only. There seems to be a certain amount of animal energy bottled up within most children, and the more natural outlets are given the less likely he is to find unnatural and harmful ones.

A watch should be kept over the books that are put before young persons, but it should be apparent as interest rather than as espionage.

The choice of books

If the best books are placed in their hands from the first, taste for them will be acquired and vapid, sensational tales will not appeal to them. Stories of action, of heroic achievement, or of the lives of the humble furred and feathered folk satisfy the cravings of the imagination and emotion, give food for thought, and are an educational force.

If parents are willing to take these precautions to guard against temptation the girl or boy will very probably pass through the particularly dangerous years in safety, and with the resources of health and

education can face the later trials, but sometimes the evil is a very real assailant and must be conquered in a hand-to-hand struggle.

If the parents find that masturbation is being practiced by a child, a possibility which must be recognized, the duty of a plain explanation becomes necessary. Professor William James says that the danger of a person's continuing in a bad habit is that he will not face it, and call it by its name. That danger parents can eliminate, and they should never allow the child to be left in ignorance of the significance of such a practice and of its effects.

Facing the bad habit and calling it by its name to the child

If he knows that its mastery over a person entails a weakening of the will and the moral sense, a loss of vital force, and a consequent susceptibility to disease, and an enfeebling of mental power, all of which grow more and more marked and more beyond his control as the habit becomes fixed, he can not fail to wish to make a fight against it. If he lacks confidence in the parent and can not be made to appreciate the gravity of the danger, there should be no hesitation in requiring him to receive advice from a physician.

Telling of the consequent moral and mental deterioration

Occupation for the mind and hands is here again the cure as well as the prevention. Vigorous sports, life in the open air, a systematic direction of the mind away from self, and a determined seeking for social interests make possible a return to a healthy state of mind and body.

Physiologically, parentage, or the exercise of the sexual function, before the age of twenty-three at least, except in cases of precocious maturity, threatens health, and indeed life itself.

Evils of early parentage

We have spoken in another chapter of the gradual hardening or ossification of the bones in children.

The vertebræ, or small bones of the spine, are not completely ossified till after the sixteenth year. The two lower bones of the spinal column unite, to close at the back the bony ring or girdle which we have called the pelvis. The construction of the pelvis, its shape and the position of the bones composing it have much to do with the ease and safety of child-bearing. When we learn that these two vertebræ which form such an important part of the pelvic ring do not begin their slow process of consolidation till the eighteenth year we can understand why late marriages are desirable. That fact is also a strong argument against child-labor or any overtaxing of the strength in youth.

Argument against child-labor

MENSTRUATION

In the girl the age of puberty is indicated, as has been said, by the periodic appearance of the menstrual flow. The term is a derivation from the Latin word *menses,* meaning month, and the reason for its use is obvious.

It may be some months before menstruation is regularly established, but that need occasion no uneasiness. Persistent irregularity later, especially if accompanied by symptoms of disease, should not pass unnoticed, as it indicates at least a debilitated condition.

Vicarious menstruation is a periodic discharge of blood from some other organ or part of the body, which takes the place of menstruation. It may come from the nose or mouth, from the blood-vessels about the rectum, from the skin, or other parts of the body. It means a serious state of the system, not necessarily alarming if treatment is given in time. Tonics and especially nourishing food are the requirements, and with

Forms of vicarious menstruation

the return of health, the normal functions will be resumed.

The most hygienic napkin to use at this time is the cheesecloth, and absorbent cotton pad, which is burned after use. These can be bought at any druggist's, or at the large department stores, but the packages are very expensive and often are not as satisfactory as those made at home. They will generally be large enough if they are made nine inches long and three wide, and may be sewed at the edges or the absorbent cotton may be sewed or pinned with safety-pins on the cheesecloth, which is then folded to the desired size. They can be made as thick as necessary.

Making the hygienic napkin

If for any reason these can not be used, a dozen squares of the cotton or linen diaper will be needed. If preferred, thin Canton flannel can be substituted. The supporter may be a fitted girdle, which can be bought ready made, a ribbon, or a straight loose belt of elastic tape.

With some women there is no feeling of discomfort during this period, but commonly there is a degree of backache, headache, weariness, and depression of spirits. Nervousness at this time may be very marked, but as a rule the more normal a girl is in her health, the less she will suffer. The pain is commonly less after the flowing has fairly begun.

Common symptoms

During the establishment of this periodic sickness, great care should be exercised to protect the girl from cold, and to give both body and mind a rest from work of any sort. After she is older, and the menses are appearing with regularity, the need for entire rest will depend on the amount of discomfort she feels.

Care the girl must exercise

Exposure and undue exertion she should always avoid, and she should never take the violent exercise of tennis, dancing, or horseback riding at this time.

Simple treatments

If she has much active pain, she will be more comfortable in bed. A hot drink and a hot-water bag generally give relief, but when there are decided cramps, flannels wrung out of hot water and alcohol and applied well down over the pubis will act as a sedative.

Avoid all drugs and spirits

The practice of taking narcotics is very unwise. One speedily grows to be a coward where pain is concerned, and the knowledge that relief is so easily obtained constitutes the subtle power of the drug habit. The morphine preparations are dangerous for this reason, and most of the other effective anodynes have an injurious action upon the heart.

It is much safer to use the local applications, and if the pain persists and returns each month to consult a physician who may discover a simple cause which he can remove by medication.

The use of hot foot-bath

If the flowing is delayed past the usual time, it may sometimes be brought on by soaking the feet in hot water, or by taking a full hot bath, a mild laxative, and a hot drink, just before going to bed. If there are no uncomfortable feelings, and the health seems good, it is as well to wait for Nature to take her course.

BATHING DURING MENSTRUATION

Avoid tub bath

The use of the tub bath is, of course, forbidden during menstruation, and a cold sponge is not wise, even if it is one's daily habit.

Use rather a warm sponge

Cleanliness at this time is as essential as at any other, and there is no reason why sponging in warm water should be attended by any unpleasant results. It is, perhaps, better not to put the feet into the water, and if the susceptibility to cold is increased at this time a little extra care should be taken to keep the feet warm during the bath, and the body shielded from draughts, and not exposed too long to the air. Local bathing

every day is very necessary, and there need be no hesitation or fear of injury to the health in the external use of water at this time.

The habit, unfortunately growing more common, of using the internal douche each month at the end of this period is a very unwise practice, as well as being wholly uncalled for.

Avoid the douche

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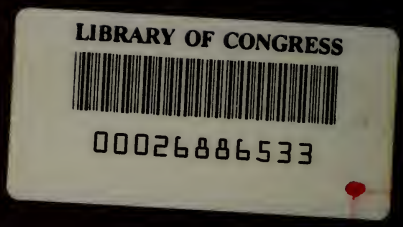
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